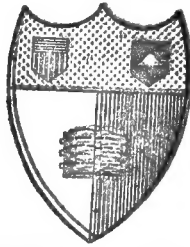


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DEPARTMENT OF COMMERCE AND LABOR

U.S. BUREAU OF THE CENSUS

S. N. D. NORTH, DIRECTOR

MANUFACTURES

1905

PART III

SPECIAL REPORTS ON SELECTED INDUSTRIES



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LETTER OF TRANSMITTAL.

DEPARTMENT OF COMMERCE AND LABOR,

BUREAU OF THE CENSUS,

Washington, D. C., November 1, 1907.

SIR:

I have the honor to transmit herewith Part III of the Report on Manufactures for the census of 1905. This census was taken in conformity with the act of Congress of March 6, 1902, and the statistics cover the calendar year ending December 31, 1904.

This volume is a compilation of the bulletins for a number of the leading industries of the United States which were published as rapidly as the compilation of the data was finished. The monographs are bound together because it is the only way they can be permanently preserved and made convenient for general reference. The statistics contained in these reports are combined with those for all other industries, thus giving the totals for all branches of manufactures in the United States and in each state and territory which are published in Parts I and II of the census of 1905. The fieldwork, the compilation of the statistics, and the preparation of the text have been done by the regular force of the Office, working under the supervision of Mr. William M. Steuart, chief statistician for manufactures.

Very respectfully,



Director.

Hon. OSCAR S. STRAUS,

Secretary of Commerce and Labor.

COMBINED TEXTILES

COMBINED TEXTILES.

By EDWARD STANWOOD, Expert Special Agent.

INTRODUCTION.

In some respects the textile industry, considered as a whole, is the most important branch of manufactures carried on in this country. It provides the material for substantially the entire clothing of the people, except their leather footwear, the hats and bonnets of women, and the summer straw hats of men. As represented in the figures of the present report it furnishes their hosiery, their underwear, and the material for all the outer garments of persons of all ages and of both sexes, to say nothing of the large class of articles chiefly for esthetic purposes in connection with clothing, of which ribbons are a conspicuous example. Moreover, it supplies articles of household use, such as carpets, toweling, and bed coverings. In the grouping of industries by the Census Bureau, "textiles" ranks third, according to value of products, the group of "food and kindred products" being first, and "iron and steel and their products" second. The Census grouping, however, associates with the textile industry proper the manufacture of clothing, etc., and the class so formed rivals the group of iron and its products. Iron and steel manufactures, considered in this large way, reported a greater value of products and accounted for the disbursement of a larger sum in wages than textiles with the clothing manufacture added. In the number of wage-earners the textile and allied industries are far in excess of any other group. They reported the impressive number 1,156,305, which is but little below the combined number employed in food and kindred products, and iron and steel and their products. The extent to which an industry gives employment and the amount which it pays in wages is a better test of its importance than the capital it requires, the cost of materials, the value of products, or even than the added value by the process of manufacture. An extensive business may be carried on in one industry upon a capital that would be entirely inadequate in another. The unit of value of materials to each person employed in iron and steel blast furnaces and steel works and rolling mills is \$2,556; in the cotton manufacture it is only \$906, a fact which illustrates the worthlessness of the cost of materials as a basis of comparison, even if it were not true that the cost of raw materials fluctuates so greatly that it can not be taken even as a test of comparison of one year with another in considering the same industry. Not only does the same objection apply to

the value of products as a basis of comparison, but when the gross value is taken as the basis there is a multiplicity of duplication—the product of one process being the raw material of the next—and accordingly this also must be rejected as a fair test. If we limit the consideration to the manufacture of cotton, silk, woolen, and worsted goods, omitting hosiery and knit goods and carpets and rugs, and take into account only the production of cloth and yarn for further manufacture, the industry gave employment to 532,057 persons at the census of 1905, which is more than twice the number engaged in producing iron and steel for further manufacture. The industries embraced in the report upon "textiles" at this census include not only those which furnish such cloth and yarn, but also the other branches of wool manufacture, the great and growing hosiery and knit goods industry, the manufacture of flax, hemp, and jute products, and the dyeing and finishing of textiles. In detail they are as follows:

Cotton manufactures:	Wool manufactures—Cont'd.
Cotton goods.	Felt hats.
Cotton small wares.	Shoddy.
Hosiery and knit goods.	Wool pulling.
Wool manufactures:	Wool scouring.
Worsted goods.	Silk and silk goods.
Woolen goods.	Flax, hemp, and jute products:
Carpets and rugs, other than rag.	Cordage and twine.
Felt goods.	Jute and jute goods.
Wool hats.	Linen goods.
	Dyeing and finishing textiles.

There are theoretical objections to including some of the foregoing branches of the industry in the category of combined textiles, some because of their simplicity, others because of their complexity. *Wool pulling, wool scouring, felt hats, and shoddy are reported upon separately in this work, and the facts regarding them are not included in the general tables for combined textiles,* although by far the largest amount of wool used is scoured in woolen, worsted, and carpet factories, and although much of the shoddy that enters into fabrics is produced in the establishments that make use of it. Felt hats are excluded because the material is fur and not wool. Yet for good reasons dyeing and finishing is included in the tables of combined textiles, notwithstanding they are to a certain extent inconsistent with the reason for excluding wool scouring and shoddy.

On the other hand, by far the largest part of the products of textile factories are goods not completely

MANUFACTURES.

manufactured in condition for final use, but, like yarn and cloth, are material for further manufacture. For this reason the production of cotton small wares and of hosiery and knit goods represents an advance upon the manufacture of ordinary textiles. The making of shoestrings, hosiery, and knit underwear, which are truly parts of the textile manufacture, may also be classed with the manufacture of clothing. Carpets need to be sewed before they can be put to use, but rugs which are made in the same factories and with

the same patterns represent completed goods, ready for sale to consumers. But no statistical error arises from including all these goods in the tables of the combined textile industry.

The general facts regarding the textile industry as a whole are given in Table 1, which is a comparative summary from which the growth of the industry, not only in the aggregate, but in each branch, may be traced at census periods extending over more than half a century.

TABLE 1.—COMBINED TEXTILES—COMPARATIVE SUMMARY, BY INDUSTRIES: 1850 TO 1905.

[The statistics for 1905 shown in the table do not include 17 establishments engaged primarily in the manufacture of other products. These establishments manufactured textiles in 1905 to the value of \$919,949. The amount of such products was not ascertained at prior censuses.]

INDUSTRY.	Census.	Number of establishments.	Capital.	SALARIED OFFICIALS, CLERKS, ETC.		WAGE-EARNERS AND WAGES.		Miscellaneous expenses.	Cost of materials used.	Value of products.
				Number.	Salaries.	Average number.	Wages.			
Total	1905	4,563	\$1,343,324,605	24,116	\$32,496,560	739,239	\$249,357,277	\$86,110,180	\$745,783,168	\$1,215,036,792
Cotton goods.....	1905	1,077	605,100,164	6,738	9,911,767	310,458	94,377,696	29,930,801	282,047,648	442,451,218
Cotton small wares.....	1905	77	8,010,491	243	326,124	5,416	1,823,100	556,577	4,207,655	8,016,486
Hosiery and knit goods.....	1905	1,079	106,003,531	4,304	4,436,941	103,715	31,536,024	10,320,176	76,593,782	136,558,139
Wool manufactures.....	1905	1,213	370,861,691	5,616	8,177,345	179,976	70,797,524	21,588,465	242,561,096	380,934,003
Silk and silk goods.....	1905	624	109,556,621	4,027	4,742,270	79,601	26,767,943	14,052,777	75,861,188	133,288,072
Flax, hemp, and jute products.....	1905	133	54,423,531	992	1,494,732	24,508	8,580,785	3,683,107	44,890,546	62,939,329
Dyeing and finishing textiles.....	1905	360	88,708,576	2,196	3,407,381	35,565	15,469,205	5,978,277	19,621,253	50,849,545
Total.....	1900	4,312	1,042,997,577	16,822	23,289,162	661,451	209,022,447	63,122,916	521,345,200	931,494,566
Cotton goods.....	1900	973	460,842,772	4,713	7,123,574	297,929	85,126,310	21,650,144	173,441,390	332,806,156
Cotton small wares.....	1900	82	6,397,385	189	226,625	4,932	1,563,442	462,534	3,110,137	6,394,164
Hosiery and knit goods.....	1900	921	81,860,604	2,809	3,124,798	83,387	24,358,627	6,599,865	51,071,859	95,482,566
Wool manufactures.....	1900	1,414	310,179,749	4,465	6,455,495	159,108	57,933,817	17,329,932	181,159,127	296,990,484
Silk and silk goods.....	1900	483	81,082,201	2,657	3,134,352	65,416	20,982,194	10,264,208	62,406,665	107,256,258
Flax, hemp, and jute products.....	1900	141	41,991,762	641	957,190	20,903	6,331,741	2,678,286	32,197,885	47,601,607
Dyeing and finishing textiles.....	1900	298	60,643,104	1,318	2,267,128	29,776	12,726,316	4,137,947	17,958,137	44,963,331
Total.....	1890	4,276	767,705,310	11,037	12,539,920	517,237	168,488,982	44,788,668	447,546,540	759,262,283
Cotton manufactures ²	1890	905	354,020,843	2,709	3,464,734	218,876	66,024,538	16,716,524	154,912,979	267,981,724
Hosiery and knit goods.....	1890	796	50,607,733	1,621	1,685,153	59,588	16,578,119	3,627,245	35,861,585	67,241,013
Wool manufactures.....	1890	1,693	245,886,743	3,652	4,057,695	154,271	54,339,775	15,672,263	167,233,987	270,527,511
Silk and silk goods.....	1890	472	51,007,537	1,531	1,917,877	49,382	17,762,441	4,250,623	61,004,425	87,298,454
Flax, hemp, and jute products.....	1890	162	27,731,649	458	609,170	15,519	4,872,389	1,431,932	26,148,344	37,313,021
Dyeing and finishing textiles.....	1890	248	38,450,800	666	805,291	19,601	8,911,720	3,181,081	12,385,220	28,900,560
Total.....	1880	4,018	412,721,496	(³)	(³)	438,251	105,050,666	(³)	302,709,894	532,673,438
Cotton manufactures ⁴	1880	756	208,280,346	.....	.....	417,659	42,040,510	.....	102,206,347	192,090,110
Hosiery and knit goods.....	1880	359	15,579,531	.....	.....	28,885	6,701,475	.....	15,210,951	29,167,227
Wool manufactures.....	1880	2,330	143,512,278	.....	.....	132,672	40,687,612	.....	149,160,600	238,085,666
Silk and silk goods.....	1880	382	19,125,300	.....	.....	31,337	9,146,705	.....	22,467,701	41,033,045
Dyeing and finishing textiles.....	1880	191	26,223,981	.....	.....	16,698	6,474,364	.....	13,664,295	32,297,420
Total.....	1870	4,790	297,694,243	(³)	(³)	274,943	86,565,191	(³)	353,249,102	520,386,714
Cotton manufactures ²	1870	956	140,706,291	.....	.....	135,369	39,044,132	.....	111,736,936	177,489,739
Hosiery and knit goods.....	1870	248	10,931,260	.....	.....	14,788	4,429,085	.....	9,835,823	18,411,564
Wool manufactures.....	1870	3,208	121,451,059	.....	.....	105,071	35,928,150	.....	124,318,792	199,257,262
Silk and silk goods.....	1870	86	6,231,130	.....	.....	6,649	1,942,286	.....	7,817,559	12,210,662
Dyeing and finishing textiles.....	1870	292	18,374,503	.....	.....	13,066	5,221,538	.....	7,959,992	11,103,537
Total.....	1860	3,027	150,000,552	(³)	(³)	194,082	40,353,462	(³)	112,842,111	214,740,614
Cotton manufactures ²	1860	1,091	98,585,260	.....	.....	122,028	23,940,108	.....	57,285,534	115,681,774
Hosiery and knit goods.....	1860	197	4,035,510	.....	.....	9,103	1,661,972	.....	3,202,317	7,280,606
Wool manufactures.....	1860	1,476	38,814,422	.....	.....	50,419	11,699,630	.....	43,447,048	73,454,000
Silk and silk goods.....	1860	139	2,926,680	.....	.....	5,435	1,050,224	.....	3,901,777	6,607,771
Dyeing and finishing textiles.....	1860	124	5,718,671	.....	.....	7,097	2,001,528	.....	5,005,435	11,716,463
Total.....	1850	3,025	112,513,947	(³)	(³)	146,877	(³)	(³)	76,715,959	128,769,971
Cotton manufactures ²	1850	1,094	74,500,931	.....	.....	92,286	(³)	.....	34,835,056	61,869,184
Hosiery and knit goods.....	1850	85	544,735	.....	.....	2,325	(³)	.....	415,113	1,028,102
Wool manufactures.....	1850	1,675	31,971,631	.....	.....	45,438	(³)	.....	28,831,583	48,608,779
Silk and silk goods.....	1850	67	678,306	.....	.....	1,743	(³)	.....	1,093,860	1,809,476
Dyeing and finishing textiles.....	1850	104	4,818,350	.....	.....	5,105	(³)	.....	11,540,347	15,454,430

¹ Includes proprietors and firm members, with their salaries; number only reported in 1900 and 1905, but not included in this table.

² Includes cotton goods and cotton small wares.

³ Not reported separately.

⁴ Includes 2,115 officers and clerks, whose salaries were not reported.

⁵ Not reported.

⁶ Includes cotton goods and cotton small wares, and in addition to these data there were received at the census of 1880 returns for 249 mills, classed as "special mills," engaged in working raw cotton, waste, or cotton yarn into hosiery, webbing, tapes, and fancy fabrics, and mixed goods or other fabrics, which are not sold as specific manufactures of wool or cotton. These 249 establishments reported \$11,224,448 capital, 12,928 employees, \$3,573,909 wages, \$2,338,385 cost of cotton consumed, \$18,860,273 value of products, and should be considered in making comparisons. In 1890 this class of mills is reported under a number of different heads, although some of them may be included in the totals for the textile industries presented in the figures for 1890.

⁷ At the census of 1870 the value of the fabric itself was reported, whereas in all subsequent censuses merely the value added to such fabric by the process of dyeing and finishing was reported as value of products.

⁸ This item was not fully reported at the census of 1850.

NUMBER OF ESTABLISHMENTS.

The total number of establishments shows a net increase of 251 since the last census. The extension of the cotton goods industry in the South between 1900 and 1905 is responsible for all of the increase reported for this branch. The largest decrease—201 establishments—occurred in the wool manufacture, but the decline was more apparent than real, as it was caused by the elimination from the 1905 totals of many custom carding mills of small capacity and by the discontinuance of operations by numerous small weaving concerns which were not favorably located. There was also a small decrease in the number of establishments for cotton small wares and flax, hemp, and jute. In neither of these cases does the decrease signify a decline of the industry.

The distribution of the industry, so far as the number of establishments is concerned, shows no important change and no tendency to change. Of the 4,430 concerns in the country engaged in the textile industry in 1905, excluding flax, hemp, and jute manufactures, 3,841 were located in 14 states bordering on the Atlantic seaboard from Maine to Georgia, and in 1900, out of a total of 4,171, there were in this territory 3,514. The cotton industry is concentrated for the most part in southern New England and in the states of Pennsylvania, North Carolina, South Carolina, and Georgia; the wool industry and knit goods in southern New England, New York, and Pennsylvania; and the silk manufacture

in Pennsylvania, New Jersey, New York, and Connecticut. The report on the silk industry gives strong reasons for regarding Pennsylvania as the leading state in the manufacture of silk at the census of 1905, having displaced New Jersey from that position since the census of 1900. Although the most important fact in the textile industry in the last quarter of a century has been the development of cotton manufacturing in the South, yet the three southern states of New England, together with New York, New Jersey, and Pennsylvania, now contain 3,011 textile establishments of the above total of 4,430, or 68 per cent.

CAPITAL.

The gross capital reported was \$1,343,324,605, and is an increase of \$300,327,028, or 28.8 per cent over 1900. Every branch of the textile industry shows an increase of capital in 1905 compared with 1900, and, with a few minor exceptions, this is true of every single division of each branch. Cotton goods increased \$144,257,392, or 31.3 per cent; cotton small wares, \$1,613,106, or 25.2 per cent; wool manufactures, \$60,681,942, or 19.6 per cent; hosiery and knit goods, \$24,802,927, or 30.3 per cent; silk, \$28,474,420, or 35.1 per cent; flax, hemp, and jute, \$12,431,769, or 29.6 per cent; and dyeing and finishing, \$28,065,472, or 46.3 per cent. A fuller statement of the capital employed in each branch of the textile industry at each census period beginning with 1840 is contained in Table 2.

TABLE 2.—CAPITAL, BY INDUSTRIES: 1840 TO 1905.

CENSUS.	Total.	Cotton manufactures. ¹	Hosiery and knit goods.	Wool manufactures. ²	Silk and silk goods.	Flax, hemp, and jute products. ³	Dyeing and finishing textiles.
1905.....	\$1,343,324,605	\$613,110,655	\$106,663,531	\$370,801,691	\$109,556,621	\$54,423,531	\$88,708,576
1900.....	1,042,997,577	467,240,157	81,860,604	310,179,749	81,082,201	41,991,762	60,643,104
1890.....	767,705,310	354,020,843	50,607,738	245,886,743	51,007,537	27,731,649	38,450,800
1880.....	412,721,496	208,280,346	15,579,591	143,512,278	19,125,300	.....	26,223,981
1870.....	297,694,243	140,706,291	10,931,260	121,451,059	6,231,130	.....	18,374,503
1860.....	150,080,852	98,585,269	4,035,510	38,814,422	2,926,980	.....	5,718,671
1850.....	112,513,947	74,500,931	544,735	31,971,631	678,300	.....	4,818,350
1840.....	66,867,483	51,102,359	(*)	15,765,124	.....	.....	.....

¹ Includes cotton goods and cotton small wares.

² Includes worsted goods; woolen goods; carpets and rugs, other than rag; felt goods; and wool hats.

³ Includes cordage and twine; jute and jute goods; and linen goods. Also two establishments classified in 1890 as "linen thread."

⁴ Not reported separately.

WAGE-EARNERS AND WAGES.

The wage-earners in all the branches of the textile industry formed a great army of men, women, and children, numbering nearly three-quarters of a mil-

lion—739,239—an increase of 77,788 since the census of 1900, or 11.8 per cent. The distribution of these employees, classified as men, women, and children, among the several branches, and the amount of their wages in 1900 and 1905 are shown in Table 3.

TABLE 3.—AVERAGE NUMBER OF WAGE-EARNERS AND WAGES, BY INDUSTRIES: 1905 AND 1900.

INDUSTRY.	Census.	TOTAL.		MEN 16 YEARS AND OVER.		WOMEN 16 YEARS AND OVER.		CHILDREN UNDER 16 YEARS.	
		Average number.	Wages.	Average number.	Wages.	Average number.	Wages.	Average number.	Wages.
Total.....	1905	739,239	\$249,357,277	335,154	\$131,618,439	330,180	\$97,523,584	73,905	\$12,145,254
Cotton goods.....	1905	310,458	94,377,696	145,718	52,212,730	124,711	35,872,510	40,023	6,292,456
Cotton small wares.....	1905	5,416	1,828,100	1,565	740,538	3,452	1,023,474	399	64,088
Hosiery and knit goods.....	1905	103,715	31,536,024	25,167	10,747,214	68,867	19,354,014	9,681	1,434,796
Wool manufactures ¹	1905	179,976	70,797,524	94,841	44,237,484	72,222	23,992,908	12,913	2,567,132
Silk and silk goods.....	1905	79,601	26,767,943	27,037	12,787,322	45,198	12,859,156	7,366	1,121,465
Flax, hemp, and jute products ²	1905	24,508	8,580,785	12,343	5,349,427	10,072	2,851,429	2,033	379,929
Dyeing and finishing textiles.....	1905	35,565	15,469,205	28,483	13,543,724	5,658	1,640,093	1,424	285,388
Total.....	1900	661,451	209,022,447	298,867	118,783,713	292,286	80,258,716	70,298	9,980,018
Cotton goods.....	1900	297,929	85,126,310	134,354	46,923,365	123,709	32,917,933	39,866	5,285,012
Cotton small wares.....	1900	4,932	1,563,442	1,367	671,516	3,173	828,732	392	63,194
Hosiery and knit goods.....	1900	83,387	24,358,627	21,154	8,890,728	53,565	14,243,808	8,668	1,224,091
Wool manufactures ¹	1900	159,108	57,933,817	83,371	36,412,872	64,141	19,549,423	11,596	1,971,522
Silk and silk goods.....	1900	65,416	20,982,194	24,206	10,699,483	34,797	9,377,696	6,413	905,015
Flax, hemp, and jute products ²	1900	20,903	6,331,741	9,996	3,824,555	8,648	2,174,152	2,259	333,034
Dyeing and finishing textiles.....	1900	29,776	12,726,316	24,419	11,361,194	4,253	1,166,972	1,104	198,150

¹ Includes worsted goods; woolen goods; carpets and rugs, other than rag; felt goods; and wool hats.

² Includes cordage and twine; jute and jute goods; and linen goods.

Although the table shows an increase in the number of wage-earners in every branch of the industry, it is a striking fact that the rate of increase in the cotton manufacture, which accounts for more than 42 per cent of all the employees, is lower than that of any other branch. The explanation, which is fully considered in the report on cotton manufactures, is that the most extensive and prolonged labor strike in the history of American cotton manufactures occurred in the city of Fall River, Mass., and lasted through six months of the census year; and to this must be added the fact of a year of unusual hardship which, owing to the excessively high price of cotton, caused the stoppage of mills in other places for longer or shorter periods. The number of employees reported above is not the usual number but the average number for the year. Had the year 1905 been a normal year, the total number in the textile industry as a whole would probably have exceeded 750,000.

The proportion of men, women, and children in each branch of the industry at each enumeration beginning with 1880 is exhibited in Table 4.

In the aggregated industry the changes indicated since 1900 are exceedingly small. The percentage of men shows a tendency to increase slightly, but this has been the case through the whole period of twenty-five years. The proportion of women is one-half of 1 per cent greater than in 1880. The proportion of children tends to decrease, but the tendency is somewhat retarded by the peculiar labor conditions in the South, where the great extension of cotton manufacturing has drawn heavily upon the available supply of helpers. The indications are that this abnormal condi-

tion is passing, and that the evil of child labor will cure itself or be cured by legislation. The cotton manufacture is the only one in which children constitute more than one-tenth of the force employed, and even in that branch the proportion has declined since 1880 from 16.2 per cent to 12.8 per cent. More violent changes are to be expected in new industries and in those that are expanding rapidly than in those which have been long established and fully organized. It is therefore not surprising to find in the silk manufacture that the proportion of men dropped from 37 per cent to 34 per cent, whereas women increased from 53.2 per cent to 56.8 per cent; and that corresponding but somewhat smaller changes took place in hosiery and knit goods; in the wool manufacture the largest change was an increase from 52.4 per cent to only 52.7 per cent in the proportion of men.

Recurring to Table 3, the total amount paid in wages to textile workers at the census of 1905 was \$249,357,277, which compares with \$209,022,447 in 1900—an increase of \$40,334,830, or 19.3 per cent. As this rate is somewhat greater than the increase in the average number, it appears to indicate an increase of wages. But such indications are to be taken with extreme caution, particularly when they result from averaging many diverse industries and wage-earners of various degrees of skill, including great numbers of men, women, and children. The figures representing aggregate wages are impressive by their magnitude, and may be useful in a general study of social and labor conditions, but they do not form a safe basis for definite economic comparisons and deductions.

TABLE 4.—AVERAGE NUMBER OF WAGE-EARNERS, AND PER CENT EACH CLASS IS OF TOTAL, BY INDUSTRIES: 1880 TO 1905.

INDUSTRY.	Cen-sus.	AVERAGE NUMBER OF WAGE-EARNERS.				PER CENT OF TOTAL.		
		Total.	Men 16 years and over.	Women 16 years and over.	Children under 16 years.	Men.	Women.	Children.
Total.....	1905	739,239	335,154	330,180	73,905	45.3	44.7	10.0
	1900	661,451	298,867	292,286	70,298	45.2	44.2	10.6
	1890	517,237	223,712	250,512	43,013	43.3	48.4	8.3
	1880	384,251	159,382	169,806	55,063	41.5	44.2	14.3
Cotton manufactures ¹	1905	315,874	147,283	128,163	40,428	46.6	40.6	12.8
	1900	302,861	135,721	126,882	40,258	44.8	41.9	13.3
	1890	218,876	88,837	106,407	23,432	40.6	48.7	10.7
	1880	174,659	61,700	84,558	28,341	35.4	48.4	16.2
Hosiery and knit goods.....	1905	103,715	25,167	68,867	9,681	24.3	66.4	9.3
	1900	83,387	21,154	53,565	8,668	25.4	64.2	10.4
	1890	59,588	14,846	40,826	3,916	24.9	68.5	6.6
	1880	28,885	7,517	17,707	3,661	26.0	61.3	12.7
Wool manufactures ²	1905	179,976	94,841	72,222	12,913	52.7	40.1	7.2
	1900	159,108	83,371	64,141	11,596	52.4	40.3	7.3
	1890	154,271	78,550	64,944	10,777	50.9	42.1	7.0
	1880	132,672	67,942	49,107	15,623	51.2	37.0	11.8
Silk and silk goods.....	1905	79,601	27,037	45,198	7,366	34.0	58.8	9.3
	1900	65,416	24,206	34,797	6,413	37.0	53.2	9.8
	1890	49,382	17,602	28,914	2,866	35.6	58.6	5.8
	1880	31,337	9,375	16,396	5,566	29.9	52.3	17.8
Flax, hemp, and jute products ⁴	1905	24,708	12,343	10,072	2,093	50.4	41.1	8.5
	1900	20,903	9,996	8,648	2,259	47.8	41.4	10.8
	1890	15,519	7,367	6,923	1,229	47.5	44.6	7.9
Dyeing and finishing textiles.....	1905	35,565	28,483	5,658	1,424	80.1	15.9	4.0
	1900	29,776	24,419	4,253	1,104	82.0	14.3	3.7
	1890	19,601	16,510	2,298	793	84.2	11.7	4.0
	1880	16,698	12,788	2,038	1,872	76.6	12.2	11.2

¹ Includes 2,115 officers and clerks whose salaries were not reported.² Includes cotton goods and cotton small wares.³ Includes worsted goods; woolen goods; carpets and rugs, other than rag; felt goods; and wool hats.⁴ Includes cordage and twine; jute and jute goods; and linen goods. Also 2 establishments classified in 1890 as "linen thread."

MATERIALS USED.

The cost of materials as reported at the census of 1905 was \$745,783,168, which compares with \$521,345,200 in 1900, an increase of \$224,437,968, or 43 per cent. Inasmuch as by far the largest part of such materials consisted of raw fiber, the price of which fluctuates widely, no safe conclusion can be drawn from these figures. As a matter of fact, the price of cotton was abnormally low in 1900 and abnormally high in 1904; and the price of wool, particularly of carpet wool, was so high in 1904 that the advance affected the manufacture seriously. A much more trustworthy, although not a wholly satisfactory basis for comparison of materials used, is the quantity of textile fibers consumed. Table 5 shows the quantity of principal raw fibers consumed in all branches of the combined textile industry, exclusive of flax, hemp, and jute, from 1840 to 1905.

TABLE 5.—Consumption of raw textile fibers: 1840 to 1905.

CENSUS.	Cotton (pounds). ¹	Wool (pounds). ²	Silk (pounds).
1905.....	1,963,617,311	500,826,711	11,572,783
1900.....	1,910,509,193	412,323,430	9,760,770
1890.....	1,193,374,641	372,797,413	6,376,881
1880.....	798,344,838	296,192,229	2,690,482
1870.....	430,781,937	219,970,174	684,488
1860.....	443,845,378	98,379,785	462,965
1850.....	288,558,000	70,862,829	.....
1840.....	126,000,000	.....	.....

¹ Includes cotton consumed in establishments classed as cotton goods; cotton small wares; worsted goods; woolen goods; carpets and rugs, other than rag; felt goods; and hosiery and knit goods.² Includes wool consumed in establishments classed as worsted goods; woolen goods; carpets and rugs, other than rag; felt goods; wool hats; and hosiery and knit goods.

The fact that the increase in the consumption of cotton was but 2.8 per cent does not signify that the manufacture of cotton goods had not increased at a higher rate than during the preceding five years, but that the manufacture in the year 1904 was affected by adverse conditions, which caused enforced idleness in a large number of important mills. The increase in the quantity of wool was 21.5 per cent. There is no reason to think that the high price of wool caused any serious diminution of consumption. The increase in the consumption of silk was 18.6 per cent. It will be observed that the quantity of fibers consumed did not in any case increase at a rate even approaching that of the cost of all the materials used—a fact which brings into great prominence the disturbance of values of the several kinds of material in 1904.

Although the several branches of the textile industry are distinct, each from all the others, and although each is properly designated by the fiber which is its chief material, there is an extensive interchange of materials. The statement is more especially true of yarns; for wool is not used in the raw state to a considerable extent in any division of the industry except in the wool manufacture and in hosiery and knit goods; and raw silk is consumed in the silk manufacture only. But cotton in the raw state is used in all the chief branches except silk. Table 6 shows the consumption of raw fibers as reported at the census of 1905, in all textile industries except flax, hemp, and jute products.

TABLE 6.—*Raw fibers consumed, by industries: 1905.*

INDUSTRY.	Cotton (pounds).	Wool (pounds).	Animal hair and fur (pounds).	Silk (pounds).
Total.....	1,963,661,711	501,468,203	50,808,287	11,572,783
Cotton goods.....	1,873,074,716			
Cotton small wares.....	3,362,434			
Hosiery and knit goods.....	50,586,760	17,300,616	89,502	
Worsted goods.....	4,333,576	261,368,084	5,740,249	
Woolen goods.....	28,279,832	157,335,727	23,754,714	
Carpets and rugs.....	1,997,369	51,320,521	6,805,802	
Felt goods.....	1,982,624	11,868,238	6,974,634	
Wool hats.....		1,633,525	210,027	
Shoddy.....	44,400	597,492	505,000	
Felt hats.....		44,000	6,723,359	
Silk and silk goods.....				11,572,783

¹ Exclusive of 18,142,735 pounds of cotton consumed in cordage and twine mills.

TABLE 7.—*YARNS¹ CONSUMED, BY INDUSTRIES: 1905.*

INDUSTRY.	Cotton (pounds).	Woolen, worsted, and merino (pounds).	Silk (pounds).	Linen (pounds).	Jute (pounds).	Other kinds (pounds).
Total.....	336,359,633	102,411,024	6,925,493	9,048,018	49,713,205	1,081,130
Cotton goods.....	91,594,658	1,398,904	369,575	515,897		814,425
Cotton small wares.....	13,816,858	29,173	43,014	224,200		135,775
Hosiery and knit goods.....	161,500,466	16,197,803	320,671	55,392	7,225	
Worsted goods.....	13,719,123	29,673,246	304,930	1,500	13,171	
Woolen goods.....	18,878,949	9,582,443	107,377	2,007	395,101	
Carpets and rugs.....	27,421,831	44,823,531	76,000	8,228,200	49,119,558	
Felt goods.....	409,453	124,380	19	20,822	178,150	
Silk and silk goods.....	9,018,295	581,544	5,703,907			130,930

¹ Exclusive of yarns made in mill for use therein.

Cotton yarn was purchased for use in every branch of the textile industry shown in Table 7. The weight of cotton yarn purchased and consumed in the industries, exclusive of cotton goods proper, was 244,764,975 pounds. The manufacturers of cotton goods reported the production of 364,472,753 pounds of cotton yarn for sale and the purchase and consumption of 91,594,658 pounds; the difference, which is 252,878,095 pounds, represents the quantity spun for sale to other industries. It must not be understood that this amount was consumed in the textile industries included in this report, as large quantities of cotton yarn, as well as other yarns, are consumed by establishments making hand knit goods and in other branches of manufactures.

Woolen, worsted, and merino yarns are also among the materials employed in every principal branch of the textile industry; but the quantities are small except in the wool manufacture and in hosiery and knit goods. Of the 102,411,024 pounds of woolen, worsted, and merino yarn purchased by establishments of all kinds, establishments manufacturing cotton goods and cotton small wares consumed but 1,428,077 pounds and the silk manufacture only 581,544 pounds, or slightly less than 2 per cent of that here reported. As all but a small portion of such yarn was made in the mills for use therein, and does not therefore appear anywhere in the census statistics as yarn, the amount reported as purchased and consumed by cotton and silk mills is an extremely insignificant fraction of the whole.

The quantity of raw cotton consumed in manufactures other than that of cotton goods proper was 90,586,995 pounds, which was only 4.6 per cent of the entire consumption reported. The interchange of yarns reveals still more clearly the extent of the interdependence of the several branches of the textile industry, which is shown by Table 7. For reasons which are fully explained in the report upon the manufacture of flax, hemp, and jute products, the materials used in these industries can not be stated separately; they are therefore omitted from the table.

A much more important portion apparently of the silk yarn consumed was purchased for use in establishments dealing chiefly with cotton and wool. The weight of silk yarn, including spun silk, consumed in such establishments, including hosiery and knit goods, was 1,221,586 pounds, which was 17.6 per cent of the total amount of silk yarns purchased by all mills, including silk mills. The total of 5,703,907 pounds given for silk mills in Table 7 includes silk and spun silk yarn, artificial silk, organzine and tram, and fringe and floss. The amounts shown for the other industries represent silk and spun silk yarn only. As in the case of wool, the greater part of the silk yarn was undoubtedly consumed in the mills which produced it. Yet the amount consumed in other than silk mills was more than one-tenth in weight of the raw silk treated.

While the table shows that linen and jute yarns were used to some extent in all except the silk industry, the great bulk of such yarns were consumed by carpet mills.

PRODUCTS.

The gross value of all products of combined textile manufactures at the census of 1905 was \$1,215,036,792. In 1900 the value was \$931,494,566, an increase for 1905 of \$283,542,226, or 30.4 per cent. Every branch of the industry, except the minor division of wool hats, exhibits an increase in this item of the report. The lowest rate of increase—13.1 per cent—was in dyeing

and finishing textiles, which is not, strictly speaking, a textile industry; and the highest—43 per cent—was in hosiery and knit goods. Cotton manufactures increased 32.8 per cent in value, wool 28.3 per cent, and silk 24.3 per cent.

The products of textile mills are so multifarious and of such widely different value that a definite idea of the magnitude of the industry can be obtained only by a study of the details. But inasmuch as by far the largest part of the material used reaches the condition of woven goods, an impression of the quantity may be conveyed by a statement of the amount of such goods produced in the cotton, woolen, carpet, and silk mills of the country. In the following statement the

amounts are all stated in square yards, except for broad silks which is given in yards of single width:

Woven goods: 1905.

Total.....	5,798,393,412
Cotton, square yards.....	5,070,028,520
Woolen and worsted, square yards.....	509,246,942
Carpets and rugs, square yards.....	82,670,843
Silk, yards, single width.....	136,447,107

Table 8 is a comparative summary of the value of products of each branch of the industry, according to the censuses of the United States, from the earliest period for which the foundation for a statement exists.

TABLE 8.—VALUE OF PRODUCTS, BY INDUSTRIES: 1810 TO 1905.

CENSUS.	Total.	Cotton manufactures. ¹	Hosiery and knit goods.	Wool manufactures. ²	Silk and silk goods.	Flax, hemp, and jute products. ³	Dyeing and finishing textiles.
1905.....	\$1,215,036,792	\$450,467,704	\$136,558,139	\$380,934,003	\$133,288,072	\$62,939,329	\$50,849,545
1900.....	931,494,566	339,200,320	95,482,566	296,990,484	107,256,258	47,601,607	44,963,331
1890.....	759,262,283	267,981,724	67,241,013	270,527,511	87,298,454	37,313,021	28,900,560
1880.....	532,673,488	192,090,110	29,167,227	238,085,686	41,033,045	.....	32,297,420
1870.....	520,386,764	177,489,739	18,411,564	199,257,262	12,210,662	.....	*113,017,537
1860.....	214,740,614	115,681,774	7,280,606	73,454,000	6,607,771	.....	11,716,463
1850.....	128,769,371	61,869,184	1,028,102	48,608,779	1,809,476	.....	15,454,430
1840.....	67,047,452	46,350,453	.....	20,696,999	.....	.....	.....
1830.....	37,062,981	22,534,815	.....	14,528,166	.....	.....	.....
1820.....	9,247,225	4,834,157	.....	4,413,068	.....	.....	.....
1810.....	51,685,785	*26,076,997	.....	*25,608,788	.....	.....	.....

¹ Includes cotton goods and cotton small wares.

² Includes worsted goods; woolen goods; carpets and rugs, other than rag; felt goods; and wool hats.

³ Includes cordage and twine; jute and jute goods; and linen goods. Also 2 establishments in 1890 classified as "linen thread."

⁴ At the census of 1870 the value of the fabric itself was reported, whereas in all subsequent censuses merely the value added to such fabric by the process of dyeing and finishing was reported as value of products.

⁵ Includes manufactures of cotton and flax in families and otherwise.

⁶ Includes manufactures of wool in families and otherwise.

Table 9 indicates the relation of the cost of materials to the value of products for each division of the combined industry, at the last three census periods.

TABLE 9.—Cost of materials used, value of products, and cost of materials per \$100 of products, by industries: 1890 to 1905.

INDUSTRY.	Census.	Cost of materials used.	Value of products.	Cost of materials per \$100 of products.
Cotton manufactures ¹	1905	\$286,255,303	\$450,467,704	\$63.55
	1900	176,551,527	339,200,320	52.05
	1890	154,912,979	267,981,724	57.81
Hosiery and knit goods.....	1905	76,593,782	136,558,139	56.09
	1900	51,071,859	95,482,566	53.49
	1890	35,861,585	67,241,013	53.33
Wool manufactures ²	1905	242,561,096	380,934,003	63.68
	1900	181,159,127	296,990,484	61.00
	1890	167,233,937	270,527,511	61.82
Silk and silk goods.....	1905	75,861,188	133,288,072	56.92
	1900	62,406,665	107,256,258	58.18
	1890	51,004,425	87,298,454	58.43
Flax, hemp, and jute products ³	1905	44,890,546	62,939,329	71.32
	1900	32,197,885	47,601,607	67.64
	1890	26,148,344	37,313,021	70.08
Dyeing and finishing textiles...	1905	19,621,253	50,849,545	38.59
	1900	17,958,137	44,963,331	39.94
	1890	12,385,220	28,900,560	42.85

¹ Includes cotton goods and cotton small wares.

² Includes worsted goods; woolen goods; carpets and rugs, other than rag; felt goods; and wool hats.

³ Includes cordage and twine; jute and jute goods; and linen goods. Also 2 establishments classified in 1890 as "linen thread."

The percentages here shown indicate in a general way the state of trade for each period covered. The large increase of the proportionate cost of materials in the cotton industry for 1905 as compared with 1900 reflects the unusually high price of cotton at the later period. There was a similar but smaller movement in the wool industry and in knit goods and a slight movement in the opposite direction in silk. The explanation of the low percentage in the case of dyeing and finishing is that the statistics eliminate both the value of materials operated upon and the gross value of the products, and show only the materials—chemicals, dyestuffs, etc.—peculiar to the industry, and the value added by the processes to which the yarns and fabrics were subjected in these establishments.

CONSUMPTION OF DOMESTIC AND FOREIGN GOODS.

The statistics for the census of 1905 indicate the continued and increasing success of the textile manufacturers of the United States in their competition with the manufacturing countries of the world. They now supply a larger part than ever before of the home consumption in every branch of the industry except flax and jute, and have made a moderate advance in the export trade. Nevertheless, they have not produced

a sufficient amount of goods composed of wool or silk to satisfy the home demand, for the value of imports is in each case larger than the value of exports. But the difference is disappearing, and the proportion of

foreign goods to the total domestic consumption is diminishing steadily. Table 10 shows that in 1905, for the first time in the history of the trade, the imports of cotton goods were of a smaller value than the exports.

TABLE 10.—VALUE OF DOMESTIC PRODUCTS, EXPORTS, CONSUMPTION OF DOMESTIC PRODUCTS, IMPORTS FOR CONSUMPTION, AND TOTAL CONSUMPTION OF TEXTILES, WITH PER CENT OF IMPORTS TO TOTAL CONSUMPTION: 1905 AND 1900.

INDUSTRY.	Census.	Value of domestic products.	Exports. ¹	Consumption of domestic products.	Imports for consumption. ¹	Total consumption.	Per cent of imports to total consumption.
Total.....	1905 1900	\$1,101,247,918 838,929,628	\$52,321,706 25,556,057	\$1,048,926,212 813,373,571	² \$98,795,491 ² 85,769,247	\$1,147,721,703 899,142,818	8.6 9.5
Cotton manufactures.....	1905 1900	450,467,704 339,200,320	49,666,080 24,003,087	400,801,624 315,197,233	² 42,909,780 ² 35,101,398	443,711,404 350,298,631	9.7 10.0
Hosiery and knit goods.....	1905 1900	136,558,139 95,482,566	(³) (³)	136,558,139 95,482,566	² 7,131,230 ² 5,436,607	143,689,369 100,919,173	5.0 5.4
Wool manufactures.....	1905 1900	380,934,003 296,990,484	2,035,054 1,300,362	378,898,949 295,690,122	² 17,473,208 ² 15,072,389	396,372,157 310,762,511	4.4 4.9
Silk manufactures.....	1905 1900	133,288,072 107,256,258	620,572 252,608	132,667,500 107,003,650	² 31,281,273 ² 30,158,853	163,948,773 137,162,503	19.1 22.0

¹ Bureau of Statistics, Department of Commerce and Labor, "Commerce and Navigation of the United States."

² Foreign, not duty paid values.

³ Not reported separately; included with cotton, wool, and silk goods exported.

The total consumption in 1905 of textiles composed of cotton, wool, and silk, as reported above, had a value of \$1,147,721,703, of which \$98,795,491 represented the foreign value of imported goods and \$1,048,926,212 the value of the domestic production. This indicates that only 8.6 per cent of the consumption was of foreign manufacture. The corresponding percentage in 1900 was 9.5. It is not, however, fair to use these percentages as indicating anything more than a tendency. The sums reported as the consumption of domestic products and the total consumption contain numerous duplications, owing to the fact that the product of one mill often becomes the material of another. On the other hand, imported goods include articles which have been carried to a higher state of manufacture than the products of the domestic textile mills. Furthermore, the import values would need to be augmented by the duty paid upon the goods they represent in order to be comparable with the values of the domestic production. But inasmuch as the statistics for both the years are made up of the same elements in the same way, they indicate the tendency of manufactures and trade.

In detail the total consumption of cotton goods, which in this case includes cotton small wares, is reported to have had a value of \$443,711,404, of which \$400,801,624, or 90.3 per cent, represented domestic goods, and \$42,909,780, or 9.7 per cent, foreign products. In 1900, 10 per cent of the consumption was of foreign origin.

Wool manufactures were consumed to the value of \$396,372,157, of which \$378,898,949, or 95.6 per cent, represented domestic and 4.4 per cent foreign goods. As in the case of cotton goods the percentage of imported goods was smaller in 1905 than in 1900, when it was 4.9 per cent. In 1870 the proportion of foreign goods was 15 per cent.

Hosiery and knit goods show a corresponding decrease in the proportion of foreign goods to the total consumption, from 5.4 per cent in 1900 to 5 per cent in 1905. The total consumption now reported had a value of \$143,689,369, of which \$136,558,139 represented domestic and \$7,131,230 foreign goods; dividing the foreign goods according to the constituent material of chief value shows, cotton \$6,043,452, wool \$546,395, and silk \$541,383.

The silk manufacture was established in this country on an extensive scale at a much later date than either the cotton or the wool industry. In 1870 almost exactly two-thirds—66.5 per cent—of the value of silk manufactures consumed in the United States consisted of imported goods. Taking value as the basis, the proportion of imports in 1900 had been reduced to 22 per cent. At the census of 1905 they constituted but 19.1 per cent. The value of all silk goods consumed was \$163,948,773, of which \$132,667,500 represented domestic and \$31,281,273 foreign goods.

THE RANK OF THE UNITED STATES IN TEXTILE MANUFACTURES.

An attempt was made in the report at the census of 1900 to estimate the relative standing of the United States among the manufacturing countries of the world as a producer of textiles. The problem was attended with great difficulties which have not diminished. No other government undertakes to obtain industrial statistics with even an approach to the thoroughness with which the inquiry is pressed in the United States, and such facts as are officially collected in other countries are taken at longer intervals than are deemed expedient in this country. Statistics collected by commercial bodies or by private enterprise are necessarily imper-

fect, and consist in large part of estimates. Moreover, there is no standard form of inquiry common to the several countries. Under these circumstances all that is possible is to piece together such information as is to be had and to endeavor to form a conclusion which, if not strictly accurate, approximates the truth.

Combined textiles.—Treating the textile industry as a whole, the only basis of comparison for which we have anything like complete statistics is the number of persons employed, which is admittedly not an altogether sound basis. The four most important textile manufacturing countries are the United States, and three European countries—the United Kingdom, France, and Germany. The latest returns available show the following numbers engaged in the textile manufacture in these countries:

COUNTRY.	Year.	Number of wage-earners.
United States ¹	1905	862,732
United Kingdom ²	1901	1,029,353
Germany ³	1903	802,452
France ⁴	1903	634,378

¹Census of Manufactures, 1905. The total represents the greatest number employed. The average number employed during the census year was 763,375.

²Tenth Abstract of Labor Statistics for United Kingdom, 1904, page 214.

³Statistical Yearbook of German Empire, 1905, page 33.

⁴Statistical Yearbook of France, 1904, page 126.

Every available fact beyond this statement indicates that the number assigned to Germany does not truly indicate the relative importance of that Empire among textile manufacturing countries. It has only about one-fifth as many cotton spindles as the United Kingdom, is far behind it in wool, and is much less important than the United States in the cotton and silk industries, yet it is reported to have nearly as many hands employed as the United States. Although the statement is official, the number can not be, as in the other cases, that of persons employed in textile factories; it probably includes all those who are engaged in the household industry. It may be recalled that according to the report made to Congress in 1815, when there was but one large factory in the country, there were then 100,000 persons in the United States employed in the cotton manufacture—a number larger than was reported at the census of 1850, when the industry had expanded greatly.

Cotton.—It is comparatively easy to ascertain the relative rank of the countries in the manufacture of cotton. Two methods may be followed, either of which gives an approximation to the truth—the amount of cotton consumed, and the number of spinning spindles. The first statement to be presented shows the average consumption of cotton in the United States, in the United Kingdom, and on the continent of Europe, in the five years ending with each census period of the United States from 1830 to 1880, and the total consumption for the years 1890, 1900, and each succeeding year to 1905:

Cotton consumption in United States and Europe: 1830 to 1905.¹

[Expressed in thousands of bales of 500 pounds each.]

	United States.	United Kingdom.	Continent of Europe.
AVERAGE CONSUMPTION.			
Five years ending—			
1830.....	104	569	329
1840.....	204	925	503
1850.....	442	1,165	621
1860.....	650	1,812	1,192
1870.....	700	2,111	1,473
1880.....	1,234	2,339	1,964
TOTAL CONSUMPTION.			
Year—			
1890.....	2,386	3,312	3,422
1900.....	3,856	3,334	4,576
1901.....	3,727	3,269	4,576
1902.....	4,037	3,253	4,836
1903.....	4,015	3,185	5,148
1904.....	3,909	3,017	5,148
1905.....	4,310	3,620	5,148

¹The authority for this statement is Mr. Thomas R. Ellison, of Liverpool.

²Census figures.

It should be explained that the above amounts are "takings" rather than the actual consumption, and that the years reported are not the calendar but the cotton market years, which end on August 31.

According to this statement the United States took for consumption in the cotton year 1904-5 about one-third of the total quantity reported, and 690,000 bales more than the United Kingdom, and only 838,000 bales less than all the manufacturing countries of continental Europe. Yet this statement indicates that the consumption of cotton is not a perfect basis of comparison, inasmuch as the industry in the United Kingdom far exceeds that in the United States. The average spinning in England is so much finer than that in this country that a certain amount of cotton furnishes material to a much larger number of spindles.

Inasmuch as the cotton manufacturing industry has been introduced elsewhere than in Europe and the United States, and in some countries is making rapid progress, another statement is presented showing the estimated consumption of cotton in them for 1900 and 1905:

Cotton consumption, by countries: 1905 and 1900.¹

[Expressed in thousands of bales of 500 pounds each.]

COUNTRY.	1905	1900
Total.....	15,538	213,773
United States.....	4,310	3,856
United Kingdom.....	3,620	3,334
Continent of Europe.....	5,148	4,576
East Indies.....	1,350	1,139
Japan.....	875	712
Canada.....	130	105
Mexico.....	70	18
Other countries.....	35	33

¹New York Commercial and Financial Chronicle.

²The figures published in the textile report at the census of 1900 were later corrected as here given.

³The Chronicle's own estimate in its cotton review, September 9, 1905, was 3,588,000 bales; on receiving Mr. Ellison's report it adopted his figures as here given.

The above statement covers all of the world's crop of cotton that comes "into sight." It does not include the amount grown in China and consumed there. All efforts to ascertain the consumption in China are futile, although the amount which is used in factories can be fairly well estimated. It is known that there are in China 17 spinning and weaving mills with more than 600,000 spindles and 2,250 looms. The allowance of only 35,000 bales for so much machinery is evidently meager. The spinning of cotton has been carried on in China for more than a thousand years and is still practiced largely as a hand trade. The importance of the cotton culture in China may be inferred from the fact that the Empire exports to Japan the equivalent of more than half a million 500-pound bales.

So far as the figures in the table can be accepted, some of them accurate and the rest estimated closely, the United States consumes more than 28 per cent of all the cotton grown in the world; certainly more than one-fourth of it after making all allowances for the crops in India and China, which never enter into the commercial estimates.

But a far more accurate test for comparison is afforded by the number of spindles in the mills of the several countries. Table 11 shows the number of cotton spindles in the world in the autumn of 1906. These statistics are taken from the report by the Bureau of the Census upon the supply and distribution of cotton for the year ending August 31, 1906, published as Census Bulletin 63.

TABLE 11.—*World's cotton spindles, by countries: 1905-6.*¹

COUNTRY.	Cotton spindles (number).
Total.....	120,090,595
United States:	
Cotton growing states.....	8,994,868
All other states.....	16,255,228
Europe:	
United Kingdom.....	48,826,144
Germany.....	9,730,209
Russia.....	7,000,000
France.....	6,702,800
Austria.....	3,621,220
Italy.....	3,500,000
Spain.....	1,800,000
Switzerland.....	1,462,752
Belgium.....	1,122,000
Portugal.....	350,000
All other Europe.....	1,115,000
British India.....	5,250,000
Japan.....	1,403,740
China.....	619,648
Brazil.....	733,890
Mexico.....	628,096
Canada.....	775,000
Other countries.....	200,000

¹ The statistics for the United States were collected by this Bureau. Those for other countries have been compiled from a number of authorities, among them being the International Federation of Master Cotton Spinners' and Manufacturers' Associations, Manchester, Eng.; the Financial and Commercial Chronicle, New York; Cotton Facts: Lyon & Co., Bombay; and Mitsui Bussan Kaisha, Osaka.

The number of spindles in the table compared with an aggregate of 102,483,386 in 1900 shows an increase of 17,607,209, or 17.2 per cent. The aggregate number of spindles for 1900 was prepared by the New York Commercial and Financial Chronicle for the special report on textiles at the Twelfth Census.

The table shows that the United States has more than half as many spindles as the United Kingdom, more than two and a half times as many as Germany, which is third in rank, and more than one-fifth of all the spindles in the world.

Wool.—Statistics of the production of wool are not by any means so easy to obtain as statistics of the cotton crop. The countries in which cotton is produced in sufficient quantities to be exported are few, the ports from which it is sent are watched closely, and the amount available for manufacture is known with a reasonable approach to accuracy. On the other hand, wool is grown in many countries and to a considerable extent is consumed in them. It is this last fact which renders futile all attempts to discover the total quantity of wool grown and manufactured in the world. A statement of the relative rank of the leading manufacturing countries by a consideration of the number of spindles operated in each country would be valueless, even if we knew the respective numbers; but as a matter of fact there are only two countries in the world that ascertain the number of spindles by the process of counting them.

Compelled as we are to have recourse to the wool consumption as the only, although unsatisfactory, basis of comparison, there is, so far as is known, but one carefully prepared estimate of the raw wool consumed or retained for consumption in the principal manufacturing countries. It is for the year 1903, and was made for the Tariff Commission of the United Kingdom. The totals, together with the consumption in textile mills in the United States as ascertained by the census of 1905, are as follows:

Estimated amount of wool retained for consumption in principal textile manufacturing countries.

COUNTRY.	Year.	Million pounds.
United States.....	1905	1 501
France.....	1903	2 487
United Kingdom.....	1903	2 448
Germany.....	1903	2 390 ¹
Austria-Hungary.....	1903	2 126

¹ Amount consumed in textile mills, Census of Manufactures, 1905.

² Report of the Tariff Commission, United Kingdom, Vol. II, Part II.

The statement has much value as a preliminary estimate and as a general indication of the magnitude of

the industry in each country, although the most casual inspection shows that conclusions from it would be erroneous. It is well known that the United Kingdom is the leading country, although it stands third in the amount of wool used. The quality of the wool consumed and the amount of labor employed in the manufacture of a larger proportion of fine goods account for the difference. France, too, produces more fine goods than this country, and certainly takes the second rank. The case between Germany and the United States can not be determined definitely. In both countries fine and coarse goods are produced, and the relative amount of coarse goods is large. But in this country the carpet industry is more important, probably, than in Germany, and the carpet manufacture is a great consumer of wool.

On the whole, we may without question place Great Britain first, France second, with some doubt as to whether Germany or the United States holds the third place, and Austria-Hungary fifth.

Silk.—In the report of the Twelfth Census it was noted that the progress of the United States in the silk manufacture had been so great, and that its promise of further growth was so hopeful, that the industry in this country, being already second only to that of France, would probably in the near future exceed the French silk industry in importance. The prediction has already been verified. The statistics of the consumption of raw silk are much more accurate than those of wool, and the consumption is also a far more trustworthy test of the importance of the industry than is the consumption of wool.

Table 12 presents the consumption of raw silk in the important manufacturing countries of the world, averaged for the calendar years 1902, 1903, and 1904.

No means are in existence for making an estimate of the consumption of silk in China and Japan, and it may be that one or both of them exceeds the United States in the magnitude of its silk industry; but so far as statistics are available this country heads the list.

TABLE 12.—*Raw silk consumption, by countries—average for the years 1902, 1903, and 1904.*¹

COUNTRY.	AVERAGE CONSUMPTION FOR 1902, 1903, AND 1904.		
	Kilograms.	Pounds.	Per cent of total.
Total	19,748,000	43,544,340	100.0
United States	6,128,000	13,512,240	31.0
France	4,327,000	9,541,035	21.9
Germany	2,846,000	6,275,430	14.4
Switzerland	1,595,000	3,516,975	8.1
Russia and Caucasus	1,271,000	2,802,555	6.4
Italy	966,000	2,130,030	4.9
Austria-Hungary	776,000	1,711,080	3.9
England	709,000	1,563,345	3.6
India	350,000	771,750	1.8
Egypt	200,000	441,000	1.0
Spain	183,000	403,515	0.9
Syria	110,000	242,550	0.6
Morocco	70,000	154,350	0.4
Algeria and Tunis	65,000	143,325	0.3
Other countries	152,000	335,160	0.8

¹ Prepared by Messrs. Chabrières, Morel & Cie, of Lyon, Marseille, and Milan. Thirty-fourth Annual Report of the Silk Association of America, 1906.

Conclusion.—Taking the textile industry as a whole, it may be concluded that the United States, while standing at some distance from the United Kingdom, is nevertheless second only to it. Considering the several branches of the textile industry, we find that the United States stands first among silk manufacturing countries and second in the manufacture of cotton. In the manufacture of wool it is probably inferior to Germany and France, although not greatly behind either country.

The flax and jute industries are carried on in this country on a small scale. No figures can be presented to indicate even approximately the rank of the different countries, but there is no doubt that the United States occupies a rank relatively low. On the other hand, the manufacture of cordage and twine from hemp is very extensive, and in this the United States probably takes the first or the second rank.

Table 13 presents the most general facts regarding the textile industry, exclusive of flax, hemp, and jute, in the United States at each census enumeration from 1880 to 1905, by states and geographic divisions.

TABLE 13.—COMBINED TEXTILES, NOT INCLUDING FLAX, HEMP, AND JUTE PRODUCTS—COMPARATIVE SUMMARY, BY STATES AND GEOGRAPHIC DIVISIONS: 1880 TO 1905.

STATE.	Cen-sus.	Num-ber of estab-lish-ments.	Capital.	SALARIED OFFICIALS, CLERKS, ETC.		WAGE-EARNERS AND WAGES.		Miscellane-ous ex-penses.	Cost of materials used.	Value of products.
				Number.	Salaries.	Average number.	Wages.			
United States.....	1905	4,430	\$1,288,901,074	23,124	\$31,001,828	714,731	\$240,776,492	\$82,427,073	\$700,892,622	\$1,152,097,463
	1900	4,171	1,001,005,815	16,181	22,331,972	640,548	202,690,706	60,444,630	489,147,315	883,892,959
	1890	4,114	739,973,661	10,179	11,930,750	501,718	163,616,593	43,356,736	421,393,196	721,948,262
	1880	4,018	412,721,496	(?)	(?)	384,251	105,050,666	(?)	302,709,894	532,673,488
New England states.....	1905	1,141	624,696,994	7,643	12,203,764	305,474	116,847,135	33,183,544	318,370,162	522,821,440
	1900	1,124	524,899,362	5,633	9,527,370	286,469	101,934,256	26,403,681	222,297,451	412,875,975
	1890	1,210	426,365,388	3,524	4,915,773	256,018	86,973,178	24,501,029	211,974,959	365,613,324
	1880	1,214	261,561,147	.....	.....	217,674	60,611,202	.....	172,228,778	310,742,552

¹ Includes proprietors and firm members, with their salaries; number only reported in 1900 and 1905, but not included in this table.

² Not reported separately.

³ Includes 2,115 officers and clerks whose salaries were not reported.

⁴ Not reported.

MANUFACTURES.

TABLE 13.—COMBINED TEXTILES, NOT INCLUDING FLAX, HEMP, AND JUTE PRODUCTS—COMPARATIVE SUMMARY, BY STATES AND GEOGRAPHIC DIVISIONS: 1880 TO 1905—Continued.

STATE.	Cen- sus.	Num- ber of estab- lish- ments.	Capital.	SALARIED OFFICIALS, CLERKS, ETC.		WAGE-EARNERS AND WAGES.		Miscellane- ous ex- penses.	Cost of materials used.	Value of products.
				Number.	Salaries.	Average number.	Wages.			
New England states—Continued.										
Maine.....	1905	94	\$40,606,991	520	\$791,704	21,986	\$7,856,642	\$2,613,635	\$20,585,867	\$34,238,637
	1900	101	36,720,083	350	555,963	21,938	7,369,946	2,358,238	15,524,745	29,394,372
	1890	107	30,990,097	217	302,438	19,794	6,277,442	1,867,550	14,495,290	24,911,165
	1880	126	19,932,406			15,869	4,204,778		12,148,526	21,470,567
New Hampshire.....	1905	97	49,859,466	655	922,959	30,222	11,521,644	3,114,597	31,027,699	49,353,113
	1900	97	44,107,098	382	622,437	29,533	10,088,051	2,264,958	20,675,482	37,495,180
	1890	118	43,891,412	330	419,199	29,243	9,624,933	2,339,287	22,225,159	37,256,364
	1880	126	31,247,024			24,743	6,904,069		18,809,037	32,757,353
Vermont.....	1905	32	10,202,352	161	232,663	4,002	1,530,565	400,670	4,735,956	7,773,612
	1900	43	6,724,920	109	147,128	3,613	1,253,388	282,863	3,373,931	5,657,217
	1890	45	5,491,250	70	72,438	2,970	1,043,588	301,466	2,626,232	4,744,326
	1880	58	3,750,257			3,204	807,048		2,881,935	4,671,041
Massachusetts.....	1905	485	331,214,144	3,501	5,853,328	157,095	60,294,640	16,862,272	163,412,282	267,823,987
	1900	483	273,562,835	2,713	4,744,037	149,039	53,819,143	13,072,020	113,354,739	213,612,791
	1890	533	215,254,813	1,711	2,498,825	125,108	43,091,382	12,930,047	107,465,624	184,938,074
	1880	496	120,443,376			106,743	29,801,616		84,228,717	152,988,522
Rhode Island.....	1905	241	114,975,480	1,553	2,489,196	56,942	22,227,913	6,445,449	63,208,053	103,096,311
	1900	210	97,444,185	1,116	2,034,498	49,877	17,863,957	5,222,431	42,458,004	77,988,396
	1890	204	70,699,470	645	821,685	47,426	16,013,599	4,260,785	37,911,493	67,005,615
	1880	194	46,989,447			36,622	10,127,287		27,708,649	51,383,569
Connecticut.....	1905	192	77,838,561	1,253	1,913,914	35,227	13,415,731	3,746,921	35,400,305	60,535,780
	1900	190	66,340,241	963	1,423,307	32,469	11,539,771	3,203,171	26,910,550	48,728,019
	1890	203	60,038,346	551	801,188	31,477	10,922,234	2,801,894	27,251,161	46,757,780
	1880	214	39,198,637			30,493	8,766,404		26,446,914	47,271,300
Middle states.....	1905	2,131	373,256,433	10,664	13,033,266	243,875	86,051,569	33,471,684	233,807,533	403,464,079
	1900	1,969	307,765,675	7,155	8,924,195	221,944	74,632,681	26,481,180	187,031,904	334,247,580
	1890	1,914	222,402,855	4,467	5,076,869	180,669	62,435,733	14,352,458	161,124,539	279,576,396
	1880	1,540	115,483,359			132,884	38,013,381		106,328,536	183,443,725
New York.....	1905	551	117,308,102	3,154	3,942,687	72,939	27,148,604	10,670,264	70,466,351	122,966,223
	1900	528	93,392,958	2,070	2,707,559	64,734	22,606,600	6,683,087	50,273,512	93,819,518
	1890	615	75,881,672	1,459	1,829,231	60,924	20,834,522	4,840,584	47,621,495	86,171,293
	1880	480	42,022,987			45,153	12,652,423		30,610,901	56,191,417
New Jersey.....	1905	382	84,178,190	2,353	3,266,529	50,396	19,299,320	9,113,405	45,584,425	84,220,479
	1900	323	76,183,937	1,740	2,478,193	46,985	17,188,137	7,309,634	38,795,102	72,933,823
	1890	240	43,321,016	778	954,171	33,934	12,750,224	2,952,104	29,682,210	52,831,023
	1880	186	16,028,770			24,111	7,652,833		17,456,679	31,865,348
Pennsylvania.....	1905	1,160	159,796,761	4,849	5,533,137	112,873	37,568,824	13,152,964	111,253,433	186,227,337
	1900	1,076	126,346,788	3,114	3,426,774	101,845	32,624,316	11,783,429	92,301,856	157,333,201
	1890	1,010	92,686,227	2,104	2,147,210	79,277	27,089,420	6,052,430	78,869,158	132,367,499
	1880	822	51,238,747			58,005	16,560,274		53,999,549	88,594,143
Delaware.....	1905	13	2,193,682	115	115,011	1,701	597,453	202,085	1,160,465	2,397,761
	1900	16	2,174,398	81	113,896	1,882	621,729	175,615	1,377,168	2,592,201
	1890	11	2,555,233	37	37,948	1,506	508,169	122,690	1,007,270	1,821,278
	1880	13	1,227,129			1,058	301,231		975,490	1,536,260
Maryland.....	1905	25	9,779,698	193	175,902	5,966	1,437,368	332,906	5,342,859	7,652,279
	1900	26	9,667,594	150	197,773	6,498	1,591,899	529,415	4,284,266	7,568,837
	1890	38	7,958,707	89	108,309	5,028	1,253,398	384,650	3,944,406	6,385,303
	1880	39	4,965,726			4,557	846,620		3,285,917	5,256,557
Southern states.....	1905	804	250,257,496	3,398	4,091,622	138,384	29,679,146	11,732,707	125,084,203	183,985,578
	1900	702	137,172,561	2,222	2,465,059	109,501	19,858,949	5,488,519	63,624,678	107,318,831
	1890	486	62,623,729	1,118	960,968	43,650	8,810,088	2,691,420	32,624,416	49,729,674
	1880	613	20,413,414			19,409	3,254,936		12,781,692	20,381,685
Virginia.....	1905	52	9,694,856	150	161,577	6,619	1,647,739	592,658	5,949,611	9,320,828
	1900	53	6,759,667	121	136,789	5,611	1,272,256	292,451	3,322,334	5,762,329
	1890	47	4,089,511	80	59,765	2,870	568,394	177,750	1,998,555	2,964,171
	1880	56	1,646,850			1,477	241,509		1,023,471	1,618,930
West Virginia.....	1905	17	1,125,069	36	45,170	1,115	298,225	60,781	562,762	1,095,015
	1900	38	1,212,971	31	32,830	924	211,782	97,913	584,417	987,622
	1890	33	408,881	37	13,282	291	66,098	27,708	225,961	395,700
	1880	57	328,170			365	51,361		290,343	413,586
North Carolina.....	1905	272	61,002,030	1,064	1,155,072	40,541	8,369,048	2,842,163	35,129,185	50,910,558
	1900	225	34,458,422	759	652,124	32,367	5,492,194	1,099,890	18,290,225	29,996,558
	1890	124	11,195,122	260	186,825	9,016	1,500,904	442,056	6,553,635	10,053,264
	1880	98	3,058,900			3,528	462,854		1,719,352	2,857,642
South Carolina.....	1905	143	83,883,251	813	1,060,641	38,535	7,948,014	3,337,504	34,993,701	50,755,556
	1900	88	39,707,684	448	564,863	30,636	5,162,931	1,556,500	17,002,500	30,274,086
	1890	35	11,144,233	121	136,080	8,072	1,510,609	528,236	6,820,132	9,801,956
	1880	25	2,784,000			2,066	382,017		1,827,755	2,919,844
Georgia.....	1905	134	45,324,632	669	849,028	26,929	5,879,780	2,592,425	25,882,827	38,461,611
	1900	98	25,606,170	397	491,604	20,117	3,872,313	1,145,149	12,207,425	20,266,712
	1890	72	18,171,990	244	216,276	10,866	2,274,945	751,515	8,038,042	12,450,098
	1880	74	6,543,390			6,529	1,166,654		4,203,557	6,749,784
Kentucky.....	1905	28	4,257,426	80	104,617	2,187	566,098	277,771	2,045,318	3,041,071
	1900	46	3,951,418	56	84,323	2,335	515,780	175,392	2,030,684	3,274,519
	1890	49	4,142,815	109	111,694	2,767	692,400	246,643	2,300,959	3,785,436
	1880	103	1,255,750			1,181	231,755		1,107,523	1,689,694
Tennessee.....	1905	59	8,583,133	151	174,677	5,519	1,199,641	469,400	4,155,652	6,895,203
	1900	72	6,384,194	123	137,337	4,251	790,031	239,289	2,206,543	3,907,279
	1890	69	4,322,336	121	99,485	3,051	635,610	230,116	2,525,198	3,724,138
	1880	122	1,564,264			1,446	228,134		976,815	1,495,441

¹ Includes the statistics of 1 establishment in Florida not reported separately.

COMBINED TEXTILES.

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TABLE 13.—COMBINED TEXTILES, NOT INCLUDING FLAX, HEMP, AND JUTE PRODUCTS—COMPARATIVE SUMMARY, BY STATES AND GEOGRAPHIC DIVISIONS: 1880 TO 1905—Continued.

STATE.	Cen- sus.	Num- ber of estab- lish- ments.	Capital.	SALARIED OFFICIALS, CLERKS, ETC.		WAGE-EARNERS AND WAGES.		Miscellane- ous ex- penses.	Cost of materials used.	Value of products.
				Number.	Salaries.	Average number.	Wages.			
Southern states—Continued.										
Alabama.....	1905	57	\$25,545,273	291	\$367,671	12,075	\$2,568,903	\$1,047,914	\$12,350,087	\$17,370,123
	1900	45	11,944,398	172	211,251	8,592	1,526,759	530,323	4,978,620	8,414,020
	1890	22	2,965,713	55	47,318	2,510	467,818	158,734	1,573,938	2,398,646
	1880	30	1,276,400			1,508	243,035		833,072	1,291,764
Mississippi.....	1905	17	5,245,761	71	85,846	2,541	605,364	272,584	1,841,025	2,775,994
	1900	11	2,538,499	55	72,418	2,010	400,188	135,684	884,160	1,670,153
	1890	16	3,607,198	43	38,264	2,223	558,987	75,676	1,380,009	2,257,583
	1880	16	1,453,640			940	186,314		548,795	978,698
Arkansas.....	1905	6	398,036	7	4,860	121	30,475	20,871	94,228	145,979
	1900	15	293,353	11	7,428	198	36,290	4,985	111,498	199,471
	1890	8	164,236	12	5,250	103	15,856	8,775	46,557	71,913
	1880	27	160,550			154	20,565		119,277	177,430
Louisiana.....	1905	4	1,945,794	21	32,842	1,025	239,322	96,903	830,933	1,224,951
	1900	3	1,741,688	18	26,941	1,335	282,536	79,887	584,324	1,162,752
	1890	6	1,516,660	16	22,574	1,237	267,468	15,650	737,212	1,126,751
	1880	2	195,000			108	12,572		72,470	86,776
Texas.....	1905	15	3,252,235	45	49,621	1,177	326,537	121,733	1,248,874	1,988,689
	1900	8	2,514,097	31	47,151	1,125	295,889	131,056	761,888	1,403,330
	1890	5	895,034	20	24,155	644	190,999	28,561	424,218	700,018
	1880	3	147,500			107	28,166		59,262	102,100
Western states.....										
	1905	354	40,690,151	1,419	1,673,176	26,998	8,198,642	4,039,138	23,630,724	41,826,366
	1900	376	31,168,217	1,171	1,415,348	22,634	6,264,820	2,071,250	16,193,282	29,450,573
	1890	504	28,581,689	1,070	977,140	21,381	5,397,594	1,811,829	15,674,282	27,029,868
	1880	651	15,263,576			14,284	3,171,147		11,375,888	18,305,722
Ohio.....	1905	62	6,511,653	226	265,946	4,677	1,389,672	865,762	4,597,014	8,157,731
	1900	67	4,019,267	156	165,297	2,834	796,276	364,752	2,690,483	4,828,889
	1890	125	4,820,526	210	189,614	3,760	940,904	314,894	3,233,787	5,437,483
	1880	163	2,323,340			2,839	511,923		1,780,099	3,032,669
Michigan.....	1905	56	5,171,182	238	236,504	4,475	1,192,785	630,576	3,642,230	6,448,198
	1900	51	3,652,060	243	225,338	3,563	873,902	340,247	2,850,219	4,878,984
	1890	44	1,691,461	84	64,898	1,551	366,098	119,060	1,110,018	1,964,974
	1880	51	726,189			1,397	185,364		624,241	928,766
Indiana.....	1905	27	6,470,935	165	200,049	4,082	1,196,394	517,433	3,435,001	5,542,745
	1900	35	6,553,302	197	316,512	4,672	1,393,935	323,925	2,949,048	5,561,460
	1890	61	5,431,065	151	139,884	4,283	1,010,179	379,881	3,208,276	5,214,211
	1880	95	3,413,105			2,784	662,310		2,587,954	4,074,576
Wisconsin.....	1905	70	7,339,729	294	356,180	5,589	1,631,342	816,922	4,145,164	7,930,424
	1900	66	5,440,759	197	244,319	4,135	998,616	365,213	2,516,810	4,667,294
	1890	60	4,603,613	137	145,450	3,747	807,483	279,328	2,399,217	4,100,201
	1880	53	1,559,964			1,146	285,566		1,096,474	1,827,275
Illinois.....	1905	46	6,448,238	185	248,637	3,945	1,305,550	541,767	3,533,488	6,096,877
	1900	37	4,345,696	148	211,505	3,361	961,332	294,943	2,205,394	4,087,369
	1890	75	4,119,495	201	202,330	3,871	1,113,005	234,455	2,429,564	4,666,115
	1880	85	1,825,203			2,337	555,209		1,937,336	2,980,116
Minnesota.....	1905	26	1,602,030	79	106,526	958	319,285	161,283	1,088,673	1,993,810
	1900	27	1,246,829	41	50,107	593	168,251	67,648	469,667	906,904
	1890	25	815,144	36	35,421	439	135,282	70,917	398,300	730,458
	1880	15	203,500			263	55,327		190,867	303,378
Iowa.....	1905	12	965,122	23	21,704	393	128,301	57,257	429,078	765,060
	1900	14	620,164	38	29,321	366	82,825	24,722	213,769	386,055
	1890	20	896,741	45	35,470	494	146,170	53,069	629,832	899,918
	1880	37	555,700			505	118,252		437,301	682,812
Missouri.....	1905	7	826,324	21	17,670	326	99,103	53,172	362,942	553,664
	1900	29	702,309	25	28,628	441	112,521	27,472	325,785	568,028
	1890	45	896,020	71	41,052	733	163,215	38,608	452,068	798,736
	1880	109	1,665,550			1,350	235,107		1,105,497	1,563,641
Idaho ¹	1905	3	8,485	4	2,280	12	4,576	1,523	3,477	7,705
Kansas ²	1905	3	242,955	8	9,960	153	52,402	4,694	97,121	164,574
	1880	6	141,425			126	26,075		107,401	212,065
Utah.....	1905	12	646,267	48	36,594	455	137,465	42,354	337,242	594,732
	1900	13	509,881	27	15,310	291	92,514	22,333	148,157	292,200
	1890	14	612,579	20	16,575	324	104,601	29,301	189,339	392,094
	1880	12	402,000			306	70,208		150,698	287,361
Oregon.....	1905	8	1,277,482	26	44,405	569	220,942	124,668	498,543	1,043,456
	1900	12	1,178,370	30	33,420	675	209,421	74,863	467,205	901,512
	1890	6	1,350,585	44	32,775	358	142,538	86,906	327,502	614,932
	1880	10	566,800			216	86,088		227,486	549,030
California.....	1905	19	2,855,729	91	110,721	1,267	473,037	216,507	1,304,267	2,251,884
	1900	14	1,819,481	40	51,568	922	340,420	100,821	886,260	1,463,936
	1890	20	3,235,263	61	68,366	1,733	448,224	199,373	1,238,067	2,080,215
	1880	14	1,840,800			986	375,718		1,078,534	1,794,033
All other Western states.....	³ 1905	3	324,020	11	16,000	97	47,788	5,220	156,484	275,506
	⁴ 1900	11	1,080,099	29	44,023	781	234,807	64,311	470,485	907,942
	⁵ 1890	9	109,197	10	5,305	88	19,895	6,037	58,312	130,531
	⁶ 1880	1	40,000			29	4,000		52,000	70,000

¹ Included in "all other Western states" in 1900 and 1890. No establishments reported in 1880.² Included in "all other Western states" in 1900 and 1890.³ Includes establishments distributed as follows: Nebraska, 1; North Dakota, 1; Washington, 1.⁴ Includes establishments distributed as follows: Colorado, 2; Idaho, 2; Kansas, 2; Montana, 1; Nebraska, 2; North Dakota, 1; Wyoming, 1.⁵ Includes establishments distributed as follows: Colorado, 2; Idaho, 1; Kansas, 2; Nebraska, 1; South Dakota, 2; Washington, 1.⁶ Includes Washington, 1.

COTTON MANUFACTURES

COTTON MANUFACTURES.

By EDWARD STANWOOD, Expert Special Agent.

COTTON GOODS.

INTRODUCTION.

The business of cotton manufacture experiences seasons of great prosperity and of corresponding depression. It can not be maintained that any of the causes which produce these extremes are peculiar to this business, for practically every agency which affects the prosperity of any other industry affects this also, although some of those agencies have a stronger influence upon cotton manufacture than upon almost any other class of manufactures. For example, the raw material which it uses varies in price from day to day, sometimes in a very short time to an amount equal to the margin between profit and loss in the cost of spinning yarn, and the variation is not merely one occasioned by the laws of ordinary trade, but is greatly affected by speculation. The mill treasurer who makes a series of lucky guesses as to the course of the market may make a fat dividend for his shareholders, and he who prognosticates wrongly may barely get back a new dollar for an old one; for it is impossible to cause the price of goods to follow the fluctuations in the price of raw cotton. Again, in an enlarging market and an increasing demand for goods it may easily be that the addition to the spindle capacity of the country may be too great or too small. In the one case stocks will accumulate unsold and prices will decline below the cost of production; in the other case the market demand can not be satisfied, prices advance, and the manufacturer's profit will be large. Changes of fashion also play a large part in determining whether the business of some branches of the industry shall be profitable or profitless, although fashion does not change greatly as to the character of the leading staple goods. Moreover, this industry is peculiarly subject to trials in its dealings with its employees, and is, in some states, under constraint of labor laws which do not apply to any other industry. Then, too, the whole trade is affected by such interruptions of the export business as were caused by the Boxer troubles and the boycott in China, and the general condition of business at home affects it, certainly not less than it affects most other industries.

The nominal capital invested in all the cotton mills of the country, as reported upon in the following pages, is \$605,100,164, and these establishments operated upon 1,873,074,716 pounds of raw cotton. A simple calculation will show that a profit of 2 cents a pound upon the conversion of that amount of cotton into yarn and cloth would give a return of more than 6 per cent upon the entire capital. It may be safe to estimate that, on the cloth made in the country, a difference of one-half a cent a yard between the cost of manufacture and the price at which it is sold by the mill would return to the proprietor a perfectly satisfactory dividend.

The returns upon which the following report is based are for the calendar year 1904. In some cases where the business year of the establishment reporting did not coincide with the calendar year, the returns are for a whole year but not for the year beginning with January and ending with December. It should be understood that in this report the year 1904 is always meant, even when 1905—the year when the returns were received—is mentioned. Similarly comparisons between the statistics for the Twelfth Census, which covered the year ending May 31, 1900, and 1904 are frequently made in the form of a comparison between 1900 and 1905, the years when the censuses were taken.

The course of trade during the last five years has been remarkable for the fluctuations already mentioned. The year 1899 was one of large prosperity, succeeding a year of depression. The change came almost exactly at the beginning of the year and lasted over into 1900. The year ending May 31, 1900, was consequently as unfit a year for comparison, in being one of far more than average prosperity, as we shall find the year 1904 to have been in the opposite sense. The print cloth trade is usually a good measure of the condition of cotton manufacturing. The year 1899 began with a large unsold stock on hand, which was reduced about two-thirds during the year. Prices advanced at the same time, and the trade was in such a good state that a demand for higher wages was conceded almost without demur. A similar state of affairs existed in other branches of the trade, and

the census of 1900 exhibited a condition of general prosperity. A special feature of the trade that year was an unexampled low price of cotton. At one time middling uplands, the standard by which the market is governed, touched $5\frac{1}{8}$ cents in New York, the lowest price ever quoted. The extreme high price was only $6\frac{3}{8}$ cents, and the average for the whole season, from September 1, 1898, to September 1, 1899, was but $6\frac{1}{8}$ cents, also the lowest average recorded.

The year 1900 witnessed a great and radical change for the worse. When the year opened there were no surplus stocks of standard goods on hand, except a remnant of the old stock of print cloths. Manufacturers were unable to meet the demand for goods; many were running extra time. In some southern mills two shifts were employed, and the machinery was operated day and night. Jobbers were clamorous to have their orders filled and in many cases gave orders for months in advance. But before the middle of the year the situation changed greatly. It became apparent that there was an oversupply of goods, and that the demand was lessened alarmingly. The Boxer rising in China put a check upon the increasing export trade to that Empire, and caused the southern mills, which had enjoyed a large share of that business, to become competitors with the northern mills in the home market. The situation was such at Fall River that the manufacturers of that city made an agreement, which was carried out, to curtail production by shutting down for four weeks in July and August. These peculiar circumstances would probably in any event have given an important check to the prosperity of the time, but there is little doubt that the large expansion of the southern industry—not only an increase of spinning capacity but a condition which made it profitable to run extra time—was the most potent agency in causing a temporary overproduction of goods. At all events at a period when general trade was excellent, when labor in all other industries was well employed and well paid, and when the spending power and the spending habit were at their best, the cotton manufacturing interest all at once found itself confronted by a large and rapidly accumulating stock of unsold goods. The situation was made even worse by a rise in the price of cotton at a time when goods could not be disposed of except at a sacrifice. The lowest quotation of spot cotton at New York from September, 1899, to September, 1900, was $6\frac{1}{2}$ cents, the highest was $10\frac{1}{2}$ cents, and the average $9\frac{1}{2}$ cents which average was $3\frac{1}{8}$ cents higher than the average for the preceding crop, betokening a general advance of 50.5 per cent in the cost to manufacturers of their raw material.

The unsatisfactory condition of the trade continued for more than a full year. About August, 1901, a revival began. It was seen first in the absorption of the surplus of print cloths at Fall River and in the better condition of the market for southern goods.

By the beginning of 1902 every department of the industry was in a healthy state. The export trade, which had fallen off greatly, took a strong and steady impulse for the better. The value of goods exported in the first six months of the calendar year 1902 was more than twice that of the last half of 1900. Wages which had been reduced were restored. These prosperous conditions lasted through the year 1902, but at the beginning of 1903 the trade encountered a series of disastrous influences, which continued until after the taking of the census of 1905. They affected the northern mills to a much greater extent than the southern. Indeed, the southern mills were affected so little directly that they were in effect benefited by the disasters of their northern competitors. The first of the adverse influences was the great advance in cotton as a result of almost unexampled speculation. The price in New York of middling uplands in the three cotton years (September to September) 1899–1900, 1900–1901, and 1901–1902 exhibited considerable fluctuation, but a remarkably steady average, as the following statement shows:

YEAR.	CENTS PER POUND.		
	Low.	High.	Average.
1899–1900.....	$6\frac{1}{2}$	$10\frac{1}{2}$	$9\frac{1}{2}$
1900–1901.....	8	12	$9\frac{1}{2}$
1901–1902.....	$7\frac{3}{8}$	$9\frac{1}{2}$	$9\frac{3}{8}$

The history of the cotton market during the next two years is not a subject to be entered on at length in this report. It is sufficient to say that whereas the price of cotton in the early months of the crop year 1902–3 ranged near 8 cents a pound, it rose under the influence of speculation, assisted by a short crop and by exaggerated low estimates of its amount, to a maximum of 13.5 cents and to an average for the whole year of 10.26 cents. The situation was even worse in the following year, 1903–4, for the lowest price was 9.5 cents, the highest 17.25 cents, and the average 12.58 cents—the highest average since the year 1874–75. The market for goods could not be forced to follow the price of cotton. Short time was the rule in a great many of the northern mills, and wages were cut down largely. It is to be noted, however, that the southern mills were not so much affected by the rise in cotton as the northern manufacturers, either because they purchased more largely before the rise or because they were nearer the source of supply. Labor troubles increased the difficulties of the New England manufacturers. There was a strike of nine weeks in Lowell in the spring of 1903, and in 1904 occurred the most protracted and most extensive strike that has ever been known in the cotton manufacturing industry in this country. In consequence of a resolution by the manufacturers of Fall River to reduce wages, a strike began in mills which

had more than 2,250,000 spindles and employed nearly 25,000 operatives. The employees first refused to work on July 25, 1904, and returned to the mills on January 18, 1905. The strike thus lasted only one week short of six months. In a certain sense it was a relief to the mill owners, since it saved them from the loss they would have suffered if they had continued to operate their machinery; but in another respect it was a deep and permanent injury to them, for their help sought employment elsewhere and could not be brought back when the trouble was over. Indeed, the manufacturers of Fall River have experienced a shortage of help ever since the strike of 1904. It is easy to see that the labor difficulty was a direct result of the artificial condition of the cotton market at and previous to the time it began, since the difference between the cost of goods at the prevailing rates on cotton and the price at which the goods could be sold compelled the manufacturers to take the step which led to the strike.

It has been necessary to make in the following pages almost wearisome repetition of the fact that the abnormal price of cotton and the Fall River strike caused such derangement of conditions as to render 1904 a year peculiarly unfit for comparisons, so far as the northern mills are concerned. In the year covered by the census of 1900 the New England mills paid for their domestic cotton—excluding sea-island—6.67 cents per pound, and the southern mills almost exactly the same—6.64 cents. In 1904, or the census of 1905, the New England mills paid 12.11 cents per pound on the average for their supply and the southern mills nearly a cent less—11.15 cents. The difference accounts in part for the fact that the southern mills could continue to run at a profit when those in the North were forced to shut down.

THE FOREIGN TRADE IN COTTON GOODS.

It was noted in the report of the Twelfth Census that during the preceding decade "for the first time in the history of American cotton manufacturing, the domestic market was more than once relieved and steadied by the exportation of goods to foreign markets." It will illustrate strongly the progress that has been made in the years since 1899 to change the form of the statement and say that during the ensuing five years the domestic market has been deranged and demoralized more than once by the failure of the foreign demand for American goods. The expansion of the industry has been so great that the output exceeds largely the amount necessary to supply the home market, and the increase of spindle and loom capacity is still at a higher rate than the increase in the consuming power of the American people.

Reserving for the moment a discussion of the export branch of the foreign trade, let us turn to Table 1, which presents in an abridged form the imports of manufactures of cotton since 1821 as contained in the report for the census of 1900, and continues the account to and including the fiscal year 1904-5.

Taking the import trade in cotton manufactures as a whole, we see that it has increased from an annual average of \$9,417,497 in value in the five years 1821-1825 to an annual average of \$47,122,800 in the years 1901-1905, or almost exactly fourfold. Meanwhile the average population of the country in the earlier lustrum may be taken as 10,000,000, that in the later lustrum as 80,000,000. This signifies that the population has increased at about twice the rate of the taking of foreign cotton goods during a period when the production and consumption of such articles showed an enormous expansion. But it would serve no good purpose and indicate no true result to leave the consideration of the facts at that point. An examination of the trade in detail is required if we would ascertain how far the country is dependent upon foreign cotton goods. The value of woven goods of all sorts imported amounted to 91.3 per cent of the total value of cotton goods imported in the years 1821-1825; they were 63.6 per cent of the total in 1851-1855; in the years 1891-1895 and 1901-1905 they were but little more than 16 per cent. The amount of cloth imported in the years 1861-1865, the first years in which the quantity was reported, averaged 20,264,531 square yards. In the years 1901-1905 it averaged 49,452,623 square yards. Thus, in spite of a greatly increased average consumption, the importation of cloth is less than two and a half times as much as it was forty years ago, and the increase is not much more than the production of a single moderate-sized American factory. On the other hand, there has been a great increase in the importation of embroideries, laces, and similar commodities which are classed at the custom-houses as cotton manufactures because the material is cotton, but which are not in any sense in competition with the articles classed as cotton goods in this report. They are cotton goods in the sense that watch springs are manufactures of steel, or as wood carvings are manufactures of lumber. Purchasers of foreign lawns, gingham, and other fine goods, few in number but persistent in their preference, require imported fabrics, regardless of whether they are better than the domestic, and regardless of the price. For this trade an extremely small quantity of cloth is imported. There are also small importations of yarns and of apparel, and a considerable amount of knit goods; but on the average of the last five years almost exactly one-half the total value of what are classed as foreign cotton manufactures consists of embroideries, laces, etc.

MANUFACTURES.

TABLE 1.—ANNUAL IMPORTS OF MANUFACTURES OF COTTON: 1821 TO 1905.¹

PERIOD.	Total value.	CLOTHS.				Value of cloth- ing, ready- made, and other wearing apparel, not in- cluding knit goods.	Value of embroid- eries, laces, in- sertings, trim- mings, and lace curtains, cords, and gimps.	Value of knit goods made on knitting machines or knit by hand.	THREAD (NOT ON SPOOLS) YARNS, WARPS, OR WARP YARNS.		JEANS, DENIMS, AND DRILLINGS.		All other manufac- tures (value).
		Bleached and un- bleached.		Printed, painted, and colored.					Pounds.	Value.	Square yards.	Value.	
		Square yards.	Value.	Square yards.	Value.								
1821 to 1825.....	\$47,087,487		\$15,554,005		\$27,441,735			\$2,963,151		\$752,825			\$375,771
Annual average.....	9,417,497		3,110,801		5,488,347			592,630		150,565			75,154
1826 to 1830.....	44,884,760		13,746,787		25,267,868			2,459,454		1,125,860			2,281,791
Annual average.....	8,976,952		2,749,357		5,053,574			491,891		225,772			456,358
1831 to 1835.....	59,663,092		12,538,398		38,883,167			4,202,564		1,976,861			2,062,102
Annual average.....	11,932,618		2,507,680		7,776,633			840,513		395,372			412,420
1836 to 1840.....	56,823,139		8,526,620		36,391,711			6,065,592		2,348,106			3,491,110
Annual average.....	11,364,628		1,705,324		7,278,342			1,213,119		469,621			698,222
1841 to 1845.....	51,799,107		6,746,994		32,809,354			4,763,544		2,550,049			4,929,116
Annual average.....	10,359,821		1,349,399		6,561,871			952,719		510,009			985,823
1846 to 1850.....	85,005,862		9,927,292		55,196,496		\$3,612,457	6,739,853		3,464,794			6,064,970
Annual average.....	17,001,172		1,985,458		11,039,299		722,491	1,347,971		692,959			1,212,994
1851 to 1855.....	125,045,937		21,450,115		58,049,244		15,046,131	12,342,129		5,038,857			13,119,461
Annual average.....	25,003,187		4,290,023		11,603,849		3,003,226	2,468,426		1,007,771			2,623,892
1856 to 1860.....	140,698,220		43,242,082		54,887,250		4,748,500	15,386,338		7,447,315			14,986,675
Annual average.....	28,139,644		8,648,416		10,977,450		949,700	3,077,280		1,483,463			2,997,335
1861 to 1865.....	69,914,716	48,694,938	5,857,570	52,627,714	21,633,093		2,561,291	5,848,528		5,990,398	2,569,706	\$466,835	27,557,001
Annual average.....	13,982,943	9,738,988	1,171,514	10,525,543	4,326,618		512,258	1,169,706		1,198,080	513,941	93,367	5,511,400
1866 to 1870.....	116,114,683	111,494,477	23,338,055	100,270,602	21,287,021	\$3,349,446	4,775,962	22,840,219		4,751,345	26,259,019	6,529,247	29,243,886
Annual average.....	23,222,937	22,298,815	4,667,011	20,054,120	4,257,404	669,889	955,193	4,568,044		950,269	5,251,804	1,305,850	5,848,677
1871 to 1875.....	156,317,681	159,571,062	20,033,212	140,600,128	19,387,625			25,556,007		5,111,201	19,731,562	2,748,101	88,502,736
Annual average.....	31,263,536	31,914,212	4,006,643	28,138,026	3,877,525			5,111,201		8,946,312	3,946,312	549,620	17,718,547
1876 to 1880.....	110,587,925	51,871,993	5,968,743	48,673,147	6,463,545			25,681,961		5,136,392	10,232,221	1,582,53	70,891,137
Annual average.....	22,117,585	10,374,399	1,193,749	9,734,629	1,292,709			5,136,392		2,046,444	2,046,444	316,508	14,178,227
1881 to 1885.....	158,696,177	36,946,972	4,073,830	64,758,602	7,813,583	1,201,212	20,135,628	37,754,726	2,805,179	1,991,979	24,895,570	4,384,210	81,341,009
Annual average.....	31,739,235	7,389,394	814,766	12,951,720	1,562,716	240,242	4,027,126	7,550,945	561,036	398,396	4,979,114	876,842	16,268,202
1886 to 1890.....	144,291,415	10,360,841	942,040	135,023,434	16,927,810	1,933,700	54,210,944	33,680,311	8,379,691	4,311,633			32,284,977
Annual average.....	28,858,283	2,072,168	188,408	27,004,687	3,385,502	386,740	10,842,189	6,736,062	1,675,938	862,327			6,456,995
1891.....	29,712,624	1,802,397	170,423	231,055,214	4,237,221	1,201,278	10,589,490	6,738,775	1,686,039	857,645			5,917,792
1892.....	28,323,841	1,572,224	140,001	232,407,238	4,505,666	1,261,848	11,248,289	5,833,652	1,426,585	664,952			4,669,433
1893.....	33,560,293	3,225,767	261,202	242,546,157	5,536,275	1,682,049	12,741,798	6,344,175	1,734,418	762,653			6,184,141
1894.....	22,346,547	1,152,798	95,565	227,172,415	3,385,241	1,658,778	8,021,769	4,360,655	747,038	326,224			4,438,315
1895.....	33,196,625	1,544,421	125,816	245,342,525	5,428,243	2,766,877	11,686,016	6,535,179	1,784,855	658,702			5,995,792
Total, five years.....	147,139,930	9,297,607	793,007	178,523,549	23,092,646	8,570,830	54,287,362	29,860,436	7,378,935	3,270,176			27,265,473
Annual average.....	29,427,986	1,859,521	158,602	35,704,710	4,618,529	1,714,166	10,867,472	5,972,087	1,475,787	654,035			5,453,095
1896.....	32,437,504	2,136,657	179,364	241,161,822	4,921,060	2,683,315	10,878,954	6,190,672	2,431,855	872,067			6,712,072
1897.....	34,429,363	3,177,241	273,654	235,937,975	4,404,025	2,627,222	12,573,207	5,596,703	1,664,217	647,388			8,307,164
1898.....	27,267,300	1,520,108	120,767	243,258,291	5,313,683	1,050,554	11,768,704	4,034,483	1,817,970	687,999			4,291,110
1899.....	32,054,434	1,250,932	107,023	251,196,236	6,649,014	1,027,306	14,550,015	4,335,269	2,325,974	849,819			4,535,988
1900.....	41,296,239	3,061,790	357,604	261,986,063	8,156,301	1,231,231	19,208,165	4,715,762	5,272,491	2,098,958			5,528,218
Total, five years.....	167,484,840	11,146,728	1,038,412	233,540,387	29,444,083	8,619,628	68,979,045	24,872,889	13,512,507	5,156,231			29,374,552
Annual average.....	33,496,968	2,229,346	207,682	46,708,077	5,888,817	1,723,926	13,795,809	4,974,578	2,702,501	1,031,246			5,874,910
1901.....	40,246,935	1,612,267	196,949	239,150,760	5,928,653	1,529,956	20,235,299	5,462,217	3,725,256	1,746,723			5,147,138
1902.....	44,460,126	772,011	86,386	245,440,314	6,934,393	1,656,513	22,449,314	5,363,515	5,006,190	1,921,748			6,048,257
1903.....	52,462,755	1,322,007	156,545	259,998,185	9,013,092	2,247,903	25,110,081	6,157,744	5,764,937	2,421,729			7,355,661
1904.....	49,524,246	1,415,512	159,102	250,032,691	8,144,383	2,505,035	24,848,764	6,044,691	5,060,533	2,261,924			5,560,347
1905.....	48,919,936	1,309,358	155,695	246,210,012	7,794,179	2,380,658	25,911,684	6,150,484	5,025,331	2,204,154			4,323,082
Total, five years.....	235,613,998	6,431,155	754,677	240,831,962	37,814,700	10,320,065	118,555,142	29,178,651	24,582,247	10,556,278			28,434,485
Annual average.....	47,122,800	1,286,231	150,936	48,166,392	7,562,940	2,064,013	23,711,028	5,835,730	4,916,449	2,111,256			5,686,897

¹Bureau of Statistics, Department of Commerce and Labor, "Commerce and Navigation of the United States."²Includes "bleached."

Table 2, which exhibits the quantities and values of the reexports of foreign cotton goods, has been prepared and is printed merely to show accurately the net imports—the goods which have entered into con-

sumption. The amounts are small and do not tend to increase. Only twice in the last twenty years has the annual average value of reexports of cotton goods exceeded \$200,000.

TABLE 2.—ANNUAL EXPORTS OF FOREIGN MANUFACTURES OF COTTON: 1821 TO 1905.¹

PERIOD.	Total value.	CLOTHS.				Value of clothing ready-made and other wearing apparel, not including knit goods.	Value of embroideries, laces, insertings, trimmings, and lace curtains, cords, and gimps.	Value of knit goods made on knitting machines or knit by hand.	THREADS (NOT ON SPOOLS), YARNS, WARPS, OR WARP YARNS.		JEANS, DENIMS, AND DRILLINGS.		All other manufactures (value).
		Bleached and unbleached.		Printed, painted, and colored.					Pounds.	Value.	Square yards.	Value.	
		Square yards.	Value.	Square yards.	Value.								
1821 to 1825.....	\$10,885,280		\$5,742,069		\$4,808,312			\$182,027		\$58,002			\$94,870
Annual average ..	2,177,056		1,148,414		961,663			36,405		11,000			18,974
1826 to 1830.....	9,862,047		3,998,400		5,146,287			265,564		230,992			220,804
Annual average ..	1,972,409		799,680		1,029,257			53,113		46,198			44,161
1831 to 1835.....	14,620,154		5,144,416		8,320,354			243,370		383,001			529,013
Annual average ..	2,924,031		1,028,883		1,664,071			48,674		76,600			105,803
1836 to 1840.....	8,961,354		1,771,755		6,688,983			99,343		281,812			119,461
Annual average ..	1,792,271		354,351		1,337,797			19,869		56,362			23,892
1841 to 1845.....	2,981,765		528,679		1,888,592			32,033		458,097			74,304
Annual average ..	596,353		105,736		377,718			6,407		91,619			14,873
1846 to 1850.....	3,399,388		1,054,632		2,003,578		\$59,953	75,015		81,814			124,396
Annual average ..	679,878		210,926		400,716		11,991	15,003		16,363			24,879
1851 to 1855.....	6,568,820		2,734,308		2,205,084		232,261	248,217		218,563			930,382
Annual average ..	1,313,764		546,862		441,017		46,453	49,643		43,713			186,076
1856 to 1860.....	3,974,371		1,580,911		734,265		52,275	41,816		108,642			1,456,462
Annual average ..	794,874		316,182		146,853		10,455	8,363		21,728			291,293
1861 to 1865.....	2,433,923		32,301		67,934		14,510	983		1,683			2,316,512
Annual average ..	486,785		6,460		13,587		2,902	197		337			463,302
1866 to 1870.....	3,276,462	8,640,053	802,013	10,932,705	1,360,200	\$108,061	22,692	57,379		16,584	788,805	\$131,762	777,771
Annual average ..	655,292	1,728,011	160,403	2,186,541	272,040	21,612	4,538	11,476		3,317	157,761	26,352	155,554
1871 to 1875.....	6,755,302	21,293,209	1,677,177	31,674,772	3,497,661			105,311		2,220,673	388,186		1,086,967
Annual average ..	1,351,060	4,258,642	335,435	6,334,954	699,532			21,062		444,135	77,637		217,394
1876 to 1880.....	3,236,487	9,775,110	739,931	15,797,947	1,514,558			79,991		1,149,095	180,039		721,968
Annual average ..	647,297	1,955,022	147,986	3,159,589	302,912			15,998		229,819	36,008		144,393
1881 to 1885.....	1,908,122	4,778,095	330,709	5,334,442	475,035	17,934	36,146	53,666	10,223	3,400	907,444	139,214	852,018
Annual average ..	381,624	955,619	66,142	1,066,888	95,007	3,587	7,229	10,733	2,045	680	181,489	27,843	170,403
1886 to 1890.....	943,217	167,622	8,419	2,588,483	251,001	16,474	72,148	19,998	5,734	1,780			573,397
Annual average ..	188,643	33,524	1,684	517,697	50,200	3,295	14,430	3,999	1,147	356			114,679
1891.....	129,632	7,052	401	2196,473	18,800	6,384	6,897	6,022	4,557	1,922			89,206
1892.....	141,263	720	40	2298,965	29,044	7,708	19,097	9,244					76,130
1893.....	161,429	10,500	478	2223,376	21,167	8,504	55,083	3,628	1,700	464			72,105
1894.....	212,380	18,395	1,384	3324,256	32,892	21,735	25,746	11,516	26,161	5,524			113,583
1895.....	177,604	20,955	1,066	2242,899	22,188	22,968	40,992	9,279	3,544	954			80,157
Total, five years ..	822,308	57,622	3,369	21,285,969	124,091	67,299	147,815	39,689	35,962	8,864			431,181
Annual average ..	164,462	11,524	674	2,257,194	24,818	13,460	29,563	7,938	7,192	1,773			86,236
1896.....	291,162	60,144	2,986	2781,861	58,775	41,665	51,608	19,753	6,670	2,875			113,500
1897.....	235,212	6,237	292	2313,196	28,614	29,992	26,245	17,610	1,509	590			131,869
1898.....	290,036	1,525	107	2102,910	78,125	16,654	28,166	8,330	3,140	1,241			157,413
1899.....	179,351	18,901	1,104	2215,449	19,649	12,417	14,912	7,324	3,602	1,244			122,701
1900.....	288,103	17,490	1,425	2371,440	32,912	17,986	29,072	10,356	29,191	9,909			186,443
Total, five years ..	1,283,864	104,297	5,914	22,694,856	218,075	118,714	150,003	63,373	44,112	15,859			711,926
Annual average ..	256,773	20,859	1,183	2,538,971	43,615	23,743	30,000	12,675	8,822	3,172			142,385
1901.....	541,712			212,071	29,469	51,041	344,243	3,012	6,071	2,314			111,633
1902.....	218,881	20,905	2,294	128,958	15,586	21,154	13,571	7,500					158,776
1903.....	249,938	728	70	228,612	30,194	9,743	17,324	2,329	12,380	5,803			184,475
1904.....	343,508	26,592	962	209,367	30,015	10,880	24,852	58,412	3,632	1,661			216,726
1905.....	332,917	767	150	363,220	41,025	9,986	64,952	7,012	2,083	1,713			208,079
Total, five years ..	1,686,956	48,992	3,476	1,142,228	146,289	102,804	464,942	78,265	24,166	11,491			879,689
Annual average ..	337,391	9,798	695	228,446	29,258	20,561	92,988	15,653	4,833	2,298			175,938

¹ Bureau of Statistics, Department of Commerce and Labor, "Commerce and Navigation of the United States."² Includes "bleached."

Table 3 is a statement of the quantity and value of domestic exports from 1826 to 1905, both years inclusive, by periods of five years, with the annual average

for each lustrum, and a statement by individual years from 1891 to 1905.

TABLE 3.—ANNUAL EXPORTS OF MANUFACTURES OF COTTON: 1826 TO 1905.¹

PERIOD.	Total value.	CLOTHS.				Wearing apparel (value).	All other manufactures (value).
		Uncolored.		Colored.			
		Square yards.	Value.	Square yards.	Value.		
1826 to 1830.....	\$5,885,411		\$4,637,597		\$396,840		\$850,974
Annual average.....	1,177,082		927,519		79,368		170,195
1831 to 1835.....	9,833,079		7,920,530		1,209,553		702,996
Annual average.....	1,966,616		1,584,106		241,911		140,599
1836 to 1840.....	15,370,602		12,705,759		1,870,108		794,735
Annual average.....	3,074,120		2,541,152		374,021		158,947
1841 to 1845.....	16,543,494		13,013,794		2,095,604		1,434,096
Annual average.....	3,308,699		2,602,759		419,121		286,819
1846 to 1850.....	23,013,762		18,783,667		2,086,243		2,143,852
Annual average.....	4,602,752		3,756,733		417,249		428,770
1851 to 1855.....	35,074,947		25,358,510		6,769,280		2,947,157
Annual average.....	7,014,989		5,071,702		1,353,856		589,431
1856 to 1860.....	37,985,008		12,057,614		11,499,063		14,428,331
Annual average.....	7,597,002		2,411,523		2,299,813		2,885,666
1861 to 1865.....	18,918,375	299,437	1,954,822	2,787,959	4,692,074		12,271,479
Annual average.....	3,783,675	59,887	390,964	557,592	938,415		2,454,296
1866 to 1870.....	20,920,968	28,178,007	4,757,784	10,124,404	1,795,844		14,367,340
Annual average.....	4,184,194	5,635,601	951,557	2,024,881	359,169		2,873,468
1871 to 1875.....	15,977,716	68,350,429	8,744,008	23,733,343	3,388,593		3,845,115
Annual average.....	3,195,543	13,670,086	1,748,801	4,746,669	677,719		769,023
1876 to 1880.....	50,232,849	377,519,482	30,928,096	166,729,055	13,065,548		6,239,205
Annual average.....	10,046,570	75,503,896	6,185,619	33,345,811	2,613,110		1,247,841
1881 to 1885.....	65,377,132	513,585,060	40,028,841	199,955,676	14,768,342	\$2,526,864	8,053,085
Annual average.....	13,075,426	102,717,012	8,005,768	39,991,135	2,953,668	505,373	1,610,617
1886 to 1890.....	62,114,386	548,437,085	37,358,407	256,699,421	16,447,283	1,738,544	6,570,152
Annual average.....	12,422,877	109,687,417	7,471,681	51,339,884	3,289,457	347,709	1,314,030
1891.....	13,604,857	135,529,590	9,277,112	39,016,682	2,590,934	278,169	1,458,642
1892.....	13,226,277	142,938,871	8,673,663	40,815,450	2,484,360	433,102	1,635,152
1893.....	11,809,355	100,776,006	6,306,022	43,016,108	2,802,462	452,356	2,248,515
1894.....	14,340,886	124,349,278	7,639,851	61,538,458	3,854,935	476,617	2,369,483
1895.....	13,789,810	125,790,318	7,034,678	58,467,743	3,444,539	518,730	2,791,863
Total, five years.....	66,771,185	629,384,063	38,931,326	242,854,441	15,177,230	2,158,974	10,503,655
Annual average.....	13,354,237	125,876,813	7,786,265	48,570,888	3,035,446	431,795	2,100,731
1896.....	16,837,396	166,391,639	9,539,199	58,747,729	3,419,158	708,099	3,170,940
1897.....	21,037,678	230,123,603	12,511,389	83,409,441	4,770,231	878,804	2,877,254
1898.....	17,024,092	191,092,442	9,151,936	79,415,376	4,138,887	934,192	2,799,077
1899.....	23,566,914	303,063,083	13,748,619	108,940,972	5,221,278	1,275,839	3,321,178
1900.....	24,003,087	264,314,474	13,229,443	87,880,515	4,839,491	1,602,608	4,331,545
Total, five years.....	102,469,167	1,154,985,241	58,180,586	418,394,033	22,389,045	5,399,542	16,499,994
Annual average.....	20,493,833	230,997,048	11,636,117	83,678,807	4,477,809	1,079,908	3,299,999
1901.....	20,272,418	135,554,132	7,581,812	115,949,219	6,554,225	1,654,536	4,481,845
1902.....	32,108,362	358,004,521	18,501,908	146,769,292	7,359,288	2,090,592	4,156,574
1903.....	32,216,304	325,867,530	16,909,436	169,511,667	8,443,148	2,600,136	4,263,584
1904.....	22,403,713	156,060,758	9,256,922	91,319,979	5,439,277	2,700,420	5,007,094
1905.....	49,666,080	566,584,218	33,995,134	127,916,497	7,325,408	3,477,652	4,867,886
Total, five years.....	156,666,877	1,542,071,159	86,245,212	651,466,654	35,121,346	12,523,336	22,776,983
Annual average.....	31,333,375	308,414,232	17,249,042	130,293,331	7,024,269	2,504,667	4,555,397

¹ Bureau of Statistics, Department of Commerce and Labor, "Commerce and Navigation of the United States."

The history of the export trade in American cottons has been given in former reports on the censuses of 1890 and 1900 by the present writer. But it will be seen upon an inspection of the foregoing table that the situation with respect to this trade has changed materially during the last ten years. Prior to 1895 the total value of exports of American cottons had only once reached a value of \$14,000,000 in a year. In the fiscal year 1899-1900 the exports reached a value of \$24,003,087, the largest amount ever reported up to that time. The Twelfth Census, which covered the fiscal year ending May 31, 1900, showed that the total value of products of cotton mills was \$332,806,156. The exportation then amounted to 7.2 per cent of the production. By the present enumeration the total value of goods produced in 1904 was \$442,451,218, and the value of exports during the fiscal year 1904-5 was \$49,666,080, which was 11.2 per cent of the production and is both the largest amount and the highest percentage ever reported.

A consideration of the figures given in the table by single years brings out facts which, although well known by all persons conversant with the trade, should be noted in an official report. The maximum

value of \$24,000,000 reported in 1900 was followed by a fall in value to a little more than \$20,000,000 in 1901. In the following two years the reported value leaped to a new maximum, \$32,000,000 and over, succeeded by a sudden drop to \$22,000,000, which was more than doubled in the great year 1905, when the value was almost \$50,000,000.

We next observe that the goods classed as wearing apparel have shown a steady increase in every successive year since 1895, and that the value in 1905 was more than six times the value reported for 1895. The increase has not been uninterrupted for "all other manufactures" of cotton, but there have been no marked fluctuations, and such as have occurred do not correspond in point of time with the variations in the condition of the trade as a whole. Furthermore, the exportation of colored cloths, both in quantity and in value, has been fairly steady except for the year 1904. We see, then, that the wide fluctuations in the aggregate figures were caused almost wholly by disturbances in the trade in uncolored cloths. But as the transactions in both colored and uncolored cloths are important, both classes are included in the following statement, which shows for each year from 1900 to

1905 the value of the total exportation of cloth, the exportation to the Chinese Empire, and to the rest of the world:

Value of cloth exported.

YEAR.	Total.	To Chinese Empire.	Remainder.
1905.....	\$41,320,542	\$27,761,095	\$13,559,447
1904.....	14,696,199	4,090,952	10,605,247
1903.....	25,352,584	13,689,860	11,662,724
1902.....	25,861,196	16,382,698	9,478,498
1901.....	14,136,037	4,552,534	9,583,503
1900.....	18,068,934	8,783,134	9,285,800

No statement can be prepared that will show more plainly than does this the great relative importance of the trade with China and the sensitiveness of that trade to influences from within and from without. The Boxer troubles in 1901 caused a reduction of almost one-half in the Chinese takings of American cottons, as compared with the previous year, and the restoration of order enabled the exporters of this country to send nearly four times as great a value of cloth in the following years. The extraordinarily high price of cotton in 1904 reduced the exportation to less than that of the year when the peace of the Empire was disturbed. Whether the boycott of American goods has had any influence in retarding the growth of the trade is a fact not to be revealed by any commercial statistics that are available.

The exportation of cotton goods to other countries was for many years almost stationary in amount, but is at present showing a tendency to increase. The average annual value of such exports during the six years 1900-1905, inclusive, was \$10,695,870, and the largest amount in any one of those years was \$13,559,447. Whether the recent increase is temporary or prophetic of a further extension of the general trade, is a matter of conjecture. Certainly no change has occurred in the methods by which the export business is conducted, and the increase can not be attributed to unusual efforts on the part of American manufacturers and merchants.

Indeed the export trade—that with China as well as with other countries—may be described as an accident rather than a business. Up to a certain point it grew rather than was created. To a large extent it has consisted of merchandise ordered from abroad, and to a very small degree only of exports upon orders solicited by manufacturers or by selling agents.

The system upon which the English trade is organized greatly facilitates the traffic; that which has prevailed in this country until within a recent period discouraged rather than encouraged enterprise in the direction of a foreign trade. In England the spinning and weaving of cotton are seldom or never performed in the same mill. At the great exchange in Manchester weavers order from spinners the yarn which they require, of specified counts, grades, and quantity. Merchants engaged in the export trade order from weavers cloth of the constitution and

grade which they desire for a particular market. The finishing, marking, and packing are performed in still other establishments. Thus the exporter may obtain from one of many weavers goods to bear a particular brand, and it is his business and to his advantage to adhere exactly to a label when once he has obtained a market for the goods which bear it. He is also particular to see that the packing is uniform and efficient, so that purchasers in any part of the world shall be assured that they are receiving cloth of the quality to which they have become accustomed. It need not be said that those who are engaged in the business of shipping the goods familiarize themselves with the wants of foreign communities, are on their guard against competition, and exert themselves to the utmost to retain trade. Inasmuch as foreign prices to the consumer do not fluctuate with the variations in the price of American cotton, or with the price of labor and of cotton in manufacturing districts in England and the United States, the exporting merchants meet the conditions of the time by variations in the constitution of the fabrics exported—variations important to the shipper but imperceptible to the native buyer and wearer of the cloth—when the price of cotton is high, fewer threads to the inch in the warp and filling, and a little more sizing to give the fabric the usual substance and weight.

In all these particulars the trade in the United States was for a long time carried on upon a different system; in most of them it is so still. The practice of spinning and weaving in the same mill, complicated as it is by adding the finishing, marking, and packing to the processes also carried on in the same establishment, is one of the greatest obstacles to a large increase of the trade. There are mills in the United States which have had a foreign market for their goods for a half century by making a fabric identical in all these years and by adhering to a brand which has become known in other lands. Such cases are few. For the most part manufacturers produce goods designed for the home market and are indisposed, unless in the receipt of a large order, to change—to make yarn of different counts and quality and to weave cloths of different widths and in pieces of different lengths. They sell through selling agents—commission houses—which dispose of the product of the mills to wholesale and retail merchants, and which satisfy themselves and those for whom they act, if they succeed in doing that. These commission houses are not organized to seek new outlets for goods, nor is it to be expected of them, as a reasonable thing, that they should undertake it. They would receive no greater compensation if they did open new markets; and could retain such markets, if found, only by an expenditure of time and effort which their principals could not fairly ask them to incur.

A partial improvement of the situation has been brought about by the establishment of trading companies which undertake the exportation of goods.

They correspond to the exporting merchants of Great Britain, but are under serious disadvantage as compared with them, for reasons which have already been suggested. One former difficulty—that of obtaining from many mills fabrics of uniform constitution, adapted to the market for which they are destined—has been practically surmounted since a great many manufacturing companies in the Southern states have turned their attention almost exclusively to the production of goods for export. Inasmuch as such goods go for the most part to China and are of a few standard classes, a mill devoted to the manufacture of these fabrics can be operated with as little change as to the yarn spun and in its looms as the mills which make cloth for domestic consumption. But there is still the difficulty in the labeling of the goods so as to present the same general appearance to the native purchaser. Moreover, there are no factories in the United States which now practice, or ever in the past have practiced, the art of sizing, or loading, goods with China clay and other foreign substances so as to make up in weight and in the size of the yarn for a deficiency of cotton fiber. The trade of this country is consequently subject to the fluctuations, already mentioned, in the price of raw cotton and in the cost of labor. When these elements of the cost of cloth are too high, the export trade languishes or ceases altogether. It is therefore quite irregular in volume, being of large proportions in one month and dropping almost to nothing in the next.

The bargaining between the selling houses and the trading companies is carried on altogether through brokers. The trading companies are kept constantly informed by cable of the state of supply and demand in China and of the ability of the market to take goods. The brokers are in regular communication with the managers of the companies and keep a close watch upon prices in the domestic market. There is a certain amount of export trade to other countries than

China, but it is by no means organized so closely or nursed so attentively as the China trade. Although that trade is capable of great expansion under favoring circumstances, it must always be subject to large fluctuations for reasons already given; and unless a correction can be obtained by enlarging the number of markets for domestics the result, even of expansion, will be a demoralization of prices in the home market at irregular and not infrequent intervals. Inasmuch as the mills of the country have quite outgrown the home market, it is evident that a moderate increase only of spindle capacity will be required to supply the home demand and the requirements of a single important foreign market. Hence appears the desirability of energetic action, which must necessarily be undertaken by a powerful combination of manufacturing and commercial capital, to find new outlets for the American production in competition with spinners of England and the continent of Europe.

THE GENERAL PROGRESS OF THE INDUSTRY.

The most comprehensive statistics regarding the cotton manufacturing industry are presented in Table 4, which is a comparative summary exhibiting the leading facts at each enumeration since 1850. Prior to the census of 1900 all manufactures of cotton were included in this general classification. At the Twelfth Census a division was made, and there was a separate report on cotton small wares, which were there defined as consisting of the following classes of articles: Shoe and corset lacings, lamp and stove wicks, tapes, webbings (other than elastic), lace edgings, dress and upholstery trimmings. This division has been maintained, and the following tables are for such establishments only as are devoted exclusively to spinning, to weaving fabrics other than those just enumerated, or to spinning and weaving.

TABLE 4.—COTTON GOODS—COMPARATIVE SUMMARY, WITH PER CENT OF INCREASE: 1850 TO 1905.

	CENSUS.							PER CENT OF INCREASE.					
	1905	1900	1890 ¹	1880 ¹	1870 ¹	1860 ¹	1850 ¹	1900 to 1905	1890 to 1900	1880 to 1890	1870 to 1880	1860 to 1870	1850 to 1860
Number of establishments.....	1,077	973	905	756	956	1,091	1,094	10.7	7.5	19.7	20.9	12.4	0.3
Capital.....	\$605,100,164	\$460,842,772	\$354,020,843	\$208,280,346	\$140,706,291	\$98,585,269	\$74,500,931	31.3	30.2	70.0	48.0	42.7	32.3
Salaried officials, clerks, etc., number.....	6,738	4,713	3,209	(²)	(²)	(²)	(²)	43.0	74.0	-----	-----	-----	-----
Salaries.....	\$9,911,767	\$7,123,574	\$3,404,734	(²)	(²)	(²)	(²)	39.1	105.6	-----	-----	-----	-----
Wage-earners, average number.....	310,458	297,929	218,876	174,659	135,368	122,028	92,286	4.2	36.1	25.3	29.0	10.9	32.2
Total wages.....	\$94,377,696	\$85,126,310	\$66,024,538	\$42,040,510	\$39,044,132	\$23,940,108	(²)	10.9	28.9	57.0	7.7	63.1	-----
Men 16 years and over.....	145,718	134,354	88,837	61,760	42,790	40,859	33,150	8.5	51.2	43.8	44.3	28.7	41.4
Wages.....	\$52,212,730	\$46,923,365	\$33,797,517	(²)	(²)	(²)	(²)	11.3	38.8	-----	-----	-----	-----
Women 16 years and over.....	124,711	123,709	106,607	84,558	69,637	75,169	59,136	0.8	16.0	26.1	21.4	27.4	27.1
Wages.....	\$35,872,510	\$32,917,933	\$29,165,086	(²)	(²)	(²)	(²)	9.0	12.9	-----	-----	-----	-----
Children under 16 years.....	40,029	39,866	28,432	28,341	22,942	(²)	(²)	0.4	70.1	27.3	23.5	-----	-----
Wages.....	\$6,292,456	\$5,285,012	\$3,061,935	(²)	(²)	(²)	(²)	19.1	72.6	-----	-----	-----	-----
Miscellaneous expenses.....	\$29,930,801	\$21,650,144	\$16,716,524	\$102,206,347	\$111,736,936	\$57,285,534	\$34,835,056	38.2	29.5	-----	-----	-----	-----
Cost of materials used.....	\$282,047,648	\$173,441,390	\$154,912,979	\$102,206,347	\$111,736,936	\$57,285,534	\$34,835,056	62.6	12.0	51.6	28.5	95.1	64.5
Value of products.....	\$442,451,218	\$332,806,156	\$267,981,724	\$192,090,110	\$177,489,739	\$115,681,774	\$61,869,184	32.9	24.2	39.5	8.2	53.4	87.0
Spindles, number.....	23,155,613	19,008,352	14,188,103	10,653,435	7,132,415	5,235,727	(²)	21.8	34.0	33.2	49.4	36.2	-----
Looms, number.....	540,910	450,682	324,966	225,759	157,310	126,313	(²)	20.0	38.7	43.9	43.5	24.5	-----
Cotton consumed, bales.....	3,743,089	3,639,495	2,261,600	1,570,344	(²)	(²)	641,240	2.8	60.9	44.0	-----	-----	-----
Cotton consumed, pounds.....	1,873,074,716	1,814,002,512	1,117,945,776	750,343,981	398,308,257	422,704,975	(²)	3.3	62.3	49.0	88.4	25.8	-----

¹ Includes cotton small wares.

² Decrease.

³ Includes proprietors and firm members, with their salaries; number only reported in 1900 and 1905, but not included in this table.

⁴ Not reported separately.

⁵ Not reported.

GEOGRAPHIC DISTRIBUTION OF THE INDUSTRY.

Viewed from any point the most important fact regarding the cotton manufacturing industry during the five years from 1900 to 1905 is the continued growth of the industry in the Southern states. This is not by any means a new development, but has been noted in the reports upon the censuses of 1890 and 1900. Nor has the rate of progress been either greatly accelerated or at any time since the movement began seriously retarded. It is true that the increase in the number of spindles in the Southern states has amounted to 3,210,561 in the five years under review, an average of 642,112 a year, as compared with a total of 2,744,188 during the preceding decade and an average of 274,419 annually. But the average rate of increase was 17.7 per cent annually in the decade, and only 14.9 per cent during the years 1900 to 1905. This may be set down as an example of the delusiveness of percentages, for the actual increase in the number of spindles during those five years was more than double the entire spinning capacity of the South in 1890.

No fact relating to the industrial progress of the country is more interesting, more important, or more significant to the student of social and economic conditions in the United States than the vigor, the persistency, and the success of the South in introducing this branch of manufacture. Combined with the manufacture of iron and steel it marks an industrial revolution in one-half of the country. Manifold evils sprang from the early division of the country into a manufacturing section and an agricultural section, neither of which could understand the other, sympathize with it, or lend cordial assistance in developing and promoting its interests. The change that has been wrought gives promise of a much more intimate political as well as commercial union than has ever existed, and a community of interest which carries with it the happiest augury for the future. The amazing growth of the industry at the South is a subject which will be frequently referred to during the progress of this report. The following statement shows the number of active establishments in the several geographic divisions of the country:

DIVISION.	1905	1900	1890 ¹	1880 ¹
United States.....	1,077	973	905	756
New England states.....	308	332	402	439
Middle states.....	204	225	239	139
Southern states.....	550	400	239	161
Western states.....	15	16	25	17

¹ Includes cotton small wares.

The foregoing statement is not to be taken as an indication that there has been a decline in the industry in all sections save the South. The large decrease in the number of establishments in New England and the Middle states in 1900 as compared with 1890 was due largely to the elimination from the general cotton schedules at the Twelfth Census of establishments then and now classified as "cotton small wares." During the last five years there has been a moderate consolidation of establishments, which reduces the apparent

number without involving the disappearance or disuse of any important mills. When the statistics of machinery and of products are exhibited, it will appear that the industry has grown in New England by the enlargement of existing establishments. In the South, in addition to the enlargement of the capacity of many mills, there has been a very great actual increase in the number of independent establishments, which have been located in new regions as well as in the neighborhoods where the industry had already been introduced. This fact is shown by a comparison of the number of active establishments in the several states of the South at the enumerations beginning with 1880.

Number of establishments in Southern states: 1880 to 1905.

STATE.	1905	1900	1890 ¹	1880 ¹
Total.....	550	400	239	161
Virginia.....	10	7	9	8
North Carolina.....	212	177	91	49
South Carolina.....	127	80	34	14
Georgia.....	103	67	53	40
Alabama.....	46	31	13	16
Mississippi.....	14	5	9	8
Louisiana.....	3	2	2	2
Texas.....	13	4	1	2
Arkansas.....	2	2	2	2
Tennessee.....	16	17	20	16
Kentucky.....	4	6	5	3

¹ Includes cotton small wares.

² Includes West Virginia, 1 establishment.

³ Includes Florida, 1 establishment.

These figures are presented with a caution against drawing from them too broad inferences. Establishments may be large or small. The statistics, even when nothing is shown but an enumeration of mills, do indicate a spread of the industry, and success is commonly followed by enlargement of capacity.

A far more significant indication of progress is given by a comparison in terms of that which is the universal standard in cotton manufacturing. The facts will be given again in the detailed discussion of machinery, but in order to exhibit the situation at a glance in this connection the following statements have been prepared to make clear the present distribution of the industry and the recent progress of the individual Southern states:

Producing spindles, by geographic divisions: 1905 and 1900.¹

DIVISION.	1905	1900	Increase.
United States.....	23,155,613	19,008,352	4,147,261
New England states.....	13,911,241	12,850,987	1,060,254
Middle states.....	1,548,719	1,647,251	² 98,532
Southern states.....	7,508,749	4,298,188	3,210,561
Western states.....	186,904	211,926	³ 25,022

¹ Does not include cotton small wares.

² Decrease.

Producing spindles in Southern states: 1905 and 1900.¹

STATE.	1905	1900	Increase.
Total.....	7,508,749	4,298,188	3,210,561
Virginia.....	193,062	126,827	66,235
North Carolina.....	1,880,950	1,133,432	747,518
South Carolina.....	2,864,092	1,431,349	1,432,743
Georgia.....	1,316,573	815,545	501,028
Alabama.....	758,087	411,328	346,759
Mississippi.....	125,352	75,122	50,230
Louisiana.....	59,052	55,600	3,452
Arkansas.....	13,844	9,700	4,144
Texas.....	68,170	48,756	19,414
Tennessee.....	153,375	123,896	29,479
Kentucky.....	76,192	66,633	9,559

¹ Does not include cotton small wares.

In order to complete the record the following statement is given, continuing a table presented in the reports for the Eleventh and Twelfth censuses, showing by years, since 1880, the number of spindles in southern mills and their consumption of cotton during the year. The figures, except for the census years 1890 and 1900, are compiled from the files of the New York Commercial and Financial Chronicle, which receives annually returns from all southern mills. These returns prior to 1888 were estimates, but since then are based on statements from the mills. The report of the Chronicle for the year 1904-5 has been retained in the statement instead of the present census figures, for the reason that it covers a period of twelve months widely different from the census year. The Chronicle follows the custom of the trade in obtaining returns for the crop year from September 1 to August 31. The census year now reported therefore includes eight months of the Chronicle's year 1903-4 and four months of its year 1904-5.

Spindles in southern mills, and their consumption of cotton: 1880 to 1905.

YEAR.	Number of spindles.	Number of bales of cotton used.
1904-5.....	8,050,879	2,203,406
1903-4.....	7,387,358	2,007,509
1902-3.....	6,714,589	2,049,902
1901-2.....	6,179,421	1,942,881
1900-1901.....	5,473,883	1,667,012
1899-1900.....	4,298,188	1,477,775
1898-99.....	3,832,201	1,400,026
1897-98.....	3,574,754	1,227,939
1896-97.....	3,197,545	1,024,482
1895-96.....	2,770,284	915,810
1894-95.....	2,379,281	853,352
1893-94.....	2,167,242	723,329
1892-93.....	2,082,197	733,701
1891-92.....	1,938,524	681,471
1890-91.....	1,756,047	605,916
1889-90.....	1,554,000	526,856
1888-89.....	1,344,576	450,603
1887-88.....	1,177,901	443,373
1886-87.....	1,225,000	397,929
1885-86.....	1,200,000	340,000
1884-85.....	1,150,000	266,000
1883-84.....	1,100,000	334,000
1882-83.....	860,000	331,000
1881-82.....	680,000	238,000
1880-81.....	610,000	205,000

In the two sectional divisions in which the industry has never been established on a large scale there has been an actual decrease in the number of spindles. In New England the increase was not large, slightly more than 1,000,000 spindles, about $8\frac{1}{4}$ per cent, whereas the South added nearly 3,250,000 spindles, or almost 75 per cent of the number in its mills in 1900. There was an increase in every state reporting, but it was greatest in South Carolina, which more than doubled the number of spindles in five years and assumed the second rank as a cotton manufacturing state, displacing Rhode Island which had occupied that position for many years. The growth in North Carolina, Georgia, and Alabama was only less notable than that in South Carolina; and these four states with their 6,819,702 spindles exceed by more than 1,300,000 the spindle capacity of the New England states outside of Massachusetts.

Nevertheless it remains true that New England has a long lead over the South, and that the spindle capacity of Massachusetts alone is greater than that of all the Southern states combined. It is idle to speculate how long this supremacy will continue. In 1870 the six New England states had 77 per cent of all the spindles in the country. In 1880 this proportion had increased to 81 per cent; but it declined again to 76.4 per cent in 1890, and to 67.6 per cent in 1900. At the present enumeration the proportion is almost exactly 60 per cent.

CAPITAL.

The capital employed in the cotton manufacture increased 31.3 per cent between 1900 and 1905, a greater rate of increase, upon a larger sum as a basis, than the increase from 1890 to 1900, which was 30.2 per cent. The items of capital which are given in the detailed summary appended to this report present some facts of interest. Dividing the capital into the several elements of which it is composed, the value of land increased in the last five years from \$22,546,549 to \$26,351,753, a difference of \$3,805,204, or 16.9 per cent; of buildings, from \$91,621,757 to \$115,361,238, a gain of \$23,739,481, or 25.9 per cent; of machinery, etc., from \$181,009,280 to \$245,766,621, a gain of \$64,757,341, or 35.8 per cent; and the cash and sundries item, from \$165,665,186 to \$217,620,552, an increase of \$51,955,366, or 31.4 per cent. These changes are not easy to explain, and are not, perhaps, of great significance. Examined in detail, it appears that the value of land occupied by cotton manufacturing establishments in Massachusetts exhibits a decrease of about \$1,350,000, or more than 15 per cent. Inasmuch as the land value reported by Massachusetts was almost 40 per cent of the total in 1900, this decrease alone serves to account for the small increment in the whole United States at this enumeration. Eliminating Massachusetts from the total, the land value in the rest of the country shows an increase of about 37 per cent. The greatest increase in the several items of capital is in machinery, etc., and this is true of the whole country, of the several sections, and of most of the states. South Carolina, for example, shows the prodigious increase of 123.8 per cent; North Carolina, of 74.9 per cent; Georgia, of 80.5 per cent; and Alabama, of 131.7 per cent.

EMPLOYEES AND WAGES.

Number.—The average number of persons employed in cotton manufacturing establishments in 1900, including officers and clerks, was 302,642. The corresponding figure in 1905 was 317,196. The increase, 14,554, or 4.8 per cent, was far smaller than would have been expected considering the great expansion of the industry and the enlarged machinery capacity of the old and new mills. Table 5 will throw some light upon this circumstance.

TABLE 5.—COTTON GOODS¹—WAGE-EARNERS, AVERAGE NUMBER OF MEN, WOMEN, AND CHILDREN, BY GEOGRAPHIC DIVISIONS: 1880 TO 1905.

DIVISION.	TOTAL.				MEN 16 YEARS AND OVER.				WOMEN 16 YEARS AND OVER.				CHILDREN UNDER 16 YEARS.			
	1905	1900	1890	1880	1905	1900	1890	1880	1905	1900	1890	1880	1905	1900	1890	1880
United States.....	310,458	297,929	218,876	172,544	145,718	134,854	88,837	59,685	124,711	123,709	106,607	84,539	40,029	39,866	23,432	28,320
New England states.....	155,981	162,294	147,359	125,779	76,483	78,217	63,749	45,521	70,113	73,258	73,445	62,554	9,385	10,819	10,165	17,704
Middle states.....	31,871	34,843	31,841	28,118	13,875	14,473	11,580	8,919	15,213	16,056	16,240	13,185	2,783	4,314	4,021	6,014
Southern states.....	120,110	97,494	36,415	16,317	54,621	40,528	12,517	4,633	37,918	32,528	15,083	7,587	27,571	24,438	8,815	4,097
Western states.....	2,496	3,298	3,261	2,330	739	1,136	901	612	1,467	1,867	1,839	1,213	290	295	431	505

¹Includes cotton small wares in 1890 and 1880.

It will be observed in the first place that there is a noticeable falling off in the average number of wage-earners in the New England states, amounting to 6,313, or very nearly 4 per cent. An examination of the detailed summary at the end of this report will disclose the fact that almost two-thirds of this decrease occurred in Massachusetts, where the number of employees fluctuated between a maximum of 100,982 and a minimum of 82,106. The average number was 88,033 against a similar average of 92,085 in 1900. The explanation of a diminution where there has been no decline in the industry, is the occurrence in Fall River, the chief manufacturing city, of the prolonged labor struggle already mentioned, which not only stopped production altogether for half a year but was followed by a long period when the managers of mills

were unable to obtain help, since a very large number of their former employees had dispersed to their homes or had removed to other manufacturing centers.

But this fact would account only partly for the low rate of increase in the country as a whole. The South added nearly 75 per cent to the number of its spindles, but it reports an addition of only 22,616, or 23.2 per cent, to the number of wage-earners. This difference can no doubt be explained in large part by the fact of more efficient help and improved machinery. As regards the class of the help, the foregoing table furnishes some interesting evidence which also serves to confirm the opinions set forth in the report on the census of 1900. In order to understand the facts upon which these statements are made, it is necessary to study the percentages in Table 6, in connection with the numbers in Table 5.

TABLE 6.—COTTON GOODS¹—WAGE-EARNERS, PERCENTAGE OF MEN, WOMEN, AND CHILDREN, BY GEOGRAPHIC DIVISIONS: 1880 TO 1905.

DIVISION.	MEN: PER CENT OF ALL WAGE-EARNERS.				WOMEN: PER CENT OF ALL WAGE-EARNERS.				CHILDREN: PER CENT OF ALL WAGE-EARNERS.			
	1905	1900	1890	1880	1905	1900	1890	1880	1905	1900	1890	1880
United States.....	46.9	45.1	40.6	34.6	40.2	41.5	48.7	49.0	12.9	13.4	10.7	16.4
New England states.....	49.0	48.2	43.3	36.2	45.0	45.1	49.8	49.7	6.0	6.7	6.9	14.1
Middle states.....	43.6	41.5	36.4	31.7	47.7	46.1	51.0	46.9	8.7	12.4	12.6	21.4
Southern states.....	45.5	41.6	34.4	28.4	31.6	33.4	41.4	46.5	22.9	25.0	24.2	25.1
Western states.....	29.6	34.4	30.4	26.3	58.8	56.6	56.4	52.0	11.6	9.0	13.2	21.7

¹Includes cotton small wares in 1890 and 1880.

In 1880 the men employed in cotton mills constituted a little more than one-third of the whole number employed, women constituted almost one-half, and about one-sixth were children. At every subsequent enumeration the proportion of men has increased and that of women has decreased. In the whole country at the present census 46.9 per cent of the hands employed were men, against 45.1 per cent in 1900; 40.2 per cent were women, against 41.5 per cent in 1900; and 12.9 per cent were children, against 13.4 per cent in 1900. The percentages of change seem small at first sight, but when we are dealing with such numbers as 145,718 men and 124,711 women, the actual change is important. Or, to take the actual numbers, it is found that the industry employed 11,364 more men in 1905 than in 1900, whereas the addition to the number of women was only 1,002, and of children only 163. There are many processes in a cotton mill for which female labor is perfectly adapted, and some which can be performed by children. But experience everywhere has shown that child labor is not economical. It is employed to a cer-

tain extent for reasons that were given in a former report—for lack of other labor, or because the parents employed in a mill require that employment shall be given to their children. The only region of the country where the proportion of children employed increased between 1890 and 1900 was the South, and there both the reasons just given were prevalent. In the period between 1900 and 1905 the only division of the country which exhibited a proportional increase was the West, and even there the actual number was not only insignificant, but has diminished. In all the divisions except the South there was a diminution in the number of children employed. The actual addition to the number in the Southern states was only 3,133 out of a total increase of all ages and both sexes of 22,616, or less than 14 per cent. This is an indication that the movement, both economical and sociological, which has been in progress elsewhere, is making headway at the South.

As regards the employment of women, the argument for economy is not quite so strong as in the case of children. Nevertheless, as has been pointed out before, the number of places in which women can profitably be

employed in a cotton mill in preference to men or on an equality with them, steadily decreases as the speed of machinery increases and as the requirement that one hand shall tend a greater number of machines is extended. Accordingly we find that without any concert of action—perhaps unconsciously to the general body of manufacturers—there is a slow but steady displacement of women by men. In the New England states, in twenty-five years, the proportion of women employed has dropped from 49.7 per cent to 45 per cent; that of men has risen from 36.2 per cent to 49 per cent.

Skilled operatives.—At this census, for the first time, there has been a successful enumeration of the spinners and weavers in cotton mills. An attempt in this direction was made at the Twelfth Census, but the form of the questions put to manufacturers was defective and consequently was not understood uniformly by those who made returns. The full statistics by states are to be found in Table 21 at the end of this report. The totals by geographic divisions are presented in the following tabular statement:

DIVISION.	SPINNERS.		Weavers.
	Mule.	Frame.	
United States	4,866	55,488	98,807
New England states	3,691	18,715	53,932
Middle states	714	1,745	9,793
Southern states	434	34,569	34,246
Western states	27	459	836

It will be seen that the mule spinners, who represent the operation in cotton mills requiring the greatest skill, numbered 4,866. They are almost exclusively men, and more than three-fourths of all the mule spinners were employed in New England factories. The frame spinners were more than eleven times as numerous, forming a body of 55,488. Of these, 10,709 were men, 25,701 were women, and 19,078 were children under 16 years of age. It is interesting to note the difference in the practice of manufacturers in the several geographic divisions of the country with respect to the employment of men, women, and children as frame spinners. The following statement exhibits the facts:

DIVISION.	FRAME SPINNERS.		
	Men.	Women.	Children.
United States	10,709	25,701	19,078
New England states	3,803	12,377	2,535
Middle states	187	1,276	282
Southern states	6,637	11,723	16,209
Western states	82	325	52

It appears that in New England practically two-thirds of the frame spinners were women, and that the number of children engaged in the care of spinning frames was much less than that of men; whereas in the South nearly one-half of the frame spinners were children and nearly two-thirds of the rest were women.

The number of weavers reached an aggregate of 98,807, of whom about 55 per cent were in New England mills and more than 33 per cent in southern mills. The number of men weavers exceeds that of women in the

South, but in the New England mills the reverse is the fact. The number of men in New England factories was 24,767 and of women, 28,449; in the South the number of men was 19,076 and of women, 13,828.

The spinners and weavers reported were, in the aggregate, 159,161. These two classes of skilled operatives compose very slightly more than one-half of all the wage-earners in the cotton mills of the country.

Wages.—The sum of \$94,377,696 was paid to wage-earners in cotton mills during the census year, an increase of \$9,251,386 over that paid in 1900, or 10.9 per cent, which was more than two and a half times the rate of increase in the number of wage-earners. This indicates in a general way what is otherwise known to be the fact, that there was a moderate increase in wages during the five-year period. If in the same way we examine the situation with respect to men, women, and children, the same result is indicated, namely, that the annual average earnings of each class of employees were larger in 1905 than in 1900. But the indications from such tables as these should be taken with the utmost caution, since at the best they are but averages of different things under widely varying circumstances.

MISCELLANEOUS EXPENSES.

Table 7 is a comparative summary of miscellaneous expenses in cotton mills, showing the per cent that each item is of the total for 1890, 1900, and 1905.

TABLE 7.—Cotton goods¹—miscellaneous expenses,² with per cent of total: 1890 to 1905.

	1905		1900		1890	
	Amount.	Per cent of total.	Amount.	Per cent of total.	Amount.	Per cent of total.
Total	\$29,479,984	100.0	\$20,057,190	100.0	\$16,716,524	100.0
Rent of works	659,745	2.2	691,075	3.4	488,735	2.9
Taxes	4,141,364	14.1	3,521,606	17.6	2,689,632	16.1
Rent of offices, interest, insurance, and all other sundry expenses	24,678,875	83.7	15,844,509	79.0	13,538,157	81.0

¹ Includes cotton small wares in 1890.

² Exclusive of amount paid for contract work.

It is probable that few other large industries report so small a percentage of their outgo in the rent of works as does that of cotton manufacturing. In 1890 the value of land and buildings owned by manufacturers was \$92,967,761, and the amount paid for rent of works was \$488,735. In 1900 the value of land and buildings was \$114,168,306, and the rent paid was \$691,075. Estimating the rent paid at 6 per cent of the value of property rented, the value of buildings, etc., not owned would have been \$8,145,583 in 1890 and \$11,517,917 in 1900, or about one-tenth of the value of property owned. But in 1905 the value of land and buildings owned was \$141,712,991 and the value of property hired—estimating the rent paid (\$659,745) to have been 6 per cent of its value—was \$10,995,750, or about one-thirteenth of the value of property owned. It is the almost universal practice of cotton manufacturers to own the factories occupied. This is not true of the weaving establishments in Pennsylvania, particularly in Philadel-

phia. In that state the rent of works occupied was \$144,157—more than one-fifth the amount so paid in the whole country. The other items entering into the class of miscellaneous expenses call for no special comment.

MATERIALS USED.

Cotton.—The aggregate consumption of cotton in all the textile mills of the country during the census year is discussed under "combined textiles." The consumption in cotton mills proper was 3,743,089 bales, purchased at an aggregate cost of \$221,821,944. The facts regarding the number of running bales and their weight, classified as sea-island, other domestic, and Egyptian and other foreign, in 1900 and 1905, are exhibited in the following statement:

	1905		1900	
	Bales.	Pounds.	Bales.	Pounds.
Total.....	3,743,089	1,873,074,716	3,639,495	1,814,002,512
Sea-island.....	54,384	21,862,032	47,207	18,442,634
Other domestic.....	3,629,085	1,807,512,278	3,516,080	1,739,714,946
Egyptian and other foreign.....	59,620	43,700,406	76,208	55,844,932

Sea-island cotton.—There was a small increase in the consumption of sea-island cotton as compared with 1900, and a larger decrease in the consumption of Egyptian. It is not to be inferred that these changes betoken any settled tendency in the manufacture with respect to either of these classes of materials, but merely a casual annual fluctuation. The average cost of sea-island cotton to the mills at the census of 1905 was 19.45 cents per pound; of Egyptian, 17.38 cents.

"Other domestic" cotton.—The chief material is of course the domestic cotton which is made into yarn and woven goods for the ordinary use of the people and for export. The increase in the consumption of such cotton from 1900 to 1905 is apparently not large, but

this was due to the protracted strike in Fall River, the chief cotton manufacturing city in the country. The consumption was 3,629,085 bales as compared with 3,516,080 bales in 1900, an increase of only 3.2 per cent. The average weight of bales for the census of 1905 was slightly in excess of 498 pounds as compared with 494.8 pounds in 1900.

The consumption of "other domestic" cotton by bales and pounds and the average weight of bales, by geographic divisions, for 1900 and 1905, was as follows:

DIVISION.	1905			1900		
	Bales.	Pounds.	Average weight.	Bales.	Pounds.	Average weight.
United States....	3,629,085	1,807,512,278	498.1	3,516,080	1,739,714,946	494.8
New England states.....	1,558,094	794,520,587	509.9	1,719,622	874,011,257	508.3
Middle states.....	221,643	111,973,103	505.2	272,947	135,004,971	494.6
Southern states.....	1,813,659	882,918,392	486.8	1,477,775	707,159,521	478.5
Western states.....	35,689	18,100,196	507.2	45,736	23,539,197	514.7

It is impossible to state definitely whether the amount of cotton reported by the mills represents gross or net weight, but it is believed that in most cases the gross weight, including the "tare," was returned. The usual allowance for "tare" for sea-island is 10 pounds per bale and for "other domestic," 22 pounds per bale.

As has appeared at every preceding census, the weight of bales consumed in the northern mills is heavier than those used by the southern mills. The reason is evident in the greater proportion of cotton used by the mills of New England, which is grown in the southwestern states, where the bales are heavier on the average than those from the seaboard states, which are largely consumed by local mills.

Table 8 presents the production and distribution of the cotton crop of the United States for twenty-six years, 1880 to 1905, inclusive.

TABLE 8.—QUANTITIES OF RAW COTTON PRODUCED, IMPORTED, EXPORTED, AND RETAINED FOR CONSUMPTION: 1880 TO 1905.¹

YEAR ENDING JUNE 30—	PRODUCTION.		Exports of domestic (pounds).	Domestic retained for consumption (pounds).	Imports (pounds).	Exports of foreign (pounds).	Foreign retained for consumption (pounds).	Total consumption, domestic and foreign (pounds).	Per cent of domestic product exported.
	Annual crop ² (bales).	Crop in pounds, gross weight.							
1905.....	13,565,885	6,994,281,731	4,304,848,903	2,689,432,828	60,508,548	650,294	59,858,254	2,749,291,082	61.55
1904.....	10,011,374	5,082,710,711	3,063,192,760	2,019,517,951	48,840,590	1,701,651	47,138,939	2,066,656,890	60.27
1903.....	10,727,559	5,449,610,421	3,543,043,022	1,906,567,399	74,874,426	1,475,494	73,398,932	1,979,966,331	65.01
1902.....	10,680,680	5,430,326,773	3,500,778,763	1,929,548,010	98,715,680	1,470,566	97,245,114	2,026,793,124	64.47
1901.....	10,383,422	5,298,402,830	3,330,890,448	1,967,512,382	46,631,283	306,452	46,324,831	2,013,837,213	62.87
1900.....	9,436,416	4,757,062,942	3,100,583,188	1,656,479,754	67,398,521	1,381,463	66,017,058	1,722,496,812	65.18
1899.....	11,274,840	5,794,767,917	3,773,410,293	2,021,357,624	50,158,158	293,988	49,864,170	2,071,221,794	65.12
1898.....	11,199,994	5,677,259,827	3,850,264,295	1,826,995,532	52,660,363	499,684	52,160,679	1,879,156,211	67.82
1897.....	8,757,964	4,397,177,704	3,103,754,949	1,293,422,755	51,898,926	1,188,523	50,710,403	1,344,133,158	70.59
1896.....	7,157,346	3,592,416,851	2,335,226,385	1,257,190,466	55,350,520	1,188,356	54,162,164	1,311,352,630	65.00
1895.....	9,901,251	5,036,964,409	3,517,533,109	1,519,431,300	49,332,022	771,614	48,560,408	1,567,991,708	69.83
1894.....	7,549,817	3,769,381,478	2,683,282,325	1,086,099,153	27,705,949	1,029,936	26,676,013	1,112,775,166	71.19
1893.....	6,700,365	3,352,658,458	2,212,115,126	1,140,543,332	43,367,952	360,832	43,007,120	1,183,550,452	65.98
1892.....	9,035,379	4,506,575,984	2,935,219,811	1,571,356,173	28,663,769	132,777	28,530,992	1,599,887,165	65.13
1891.....	8,652,597	4,316,043,982	2,907,358,795	1,408,685,187	20,908,817	447,794	20,461,023	1,429,146,210	67.36
1890.....	7,311,322	3,627,366,183	2,471,799,853	1,155,566,330	8,606,049	248,104	8,357,945	1,163,924,275	68.14
1889.....	6,938,290	3,439,934,799	2,384,816,669	1,055,118,130	7,973,039	187,959	7,785,080	1,062,903,210	69.33
1888.....	7,046,833	3,439,172,391	2,264,120,826	1,175,051,565	5,497,502	203,972	5,293,520	1,180,345,185	65.83
1887.....	6,505,087	3,157,378,443	2,169,457,330	987,921,113	3,924,531	716,371	3,208,160	991,129,273	68.71
1886.....	6,575,691	3,182,305,659	2,058,037,444	1,124,268,215	5,072,334	1,276,961	3,795,373	1,128,063,588	64.67
1885.....	5,706,165	2,742,966,011	1,891,650,472	851,306,539	5,115,680	1,609,260	3,506,420	854,812,959	68.96
1884.....	5,713,200	2,757,544,422	1,862,572,530	894,971,892	7,019,492	1,353,936	5,665,556	900,637,448	67.54
1883.....	6,949,756	3,405,070,410	2,288,075,062	1,116,995,348	4,081,945	3,238,930	843,015	1,117,838,363	67.20
1882.....	5,456,048	2,588,240,050	1,739,975,961	848,264,089	4,333,952	1,843,490	2,496,462	850,760,551	67.23
1881.....	6,605,750	3,199,822,682	2,191,928,772	1,007,893,910	4,449,866	1,240,576	3,209,290	1,011,103,200	68.50
1880.....	5,761,252	2,771,797,156	1,822,061,114	949,736,042	3,547,792	234,729	3,313,063	953,049,105	65.74

¹ Bureau of Statistics, Department of Commerce and Labor, "Statistical Abstract of the United States," 1905, page 440.

² The "annual crop" represents the commercial movement for the years ending August 31.

The cotton consumed in the United States in the census year was mainly that of the crop of 1903-4, the aggregate amount of which retained for consumption, together with the foreign supply, amounted to 2,066,-656,890 pounds. The amounts consumed in the several branches of the textile industry as reported at this census were as follows:

	Pounds.
Total.....	11,981,760,046
Cotton goods.....	1,873,074,716
Cotton small wares.....	3,362,434
Hosiery and knit goods.....	50,586,760
Wool manufactures.....	36,593,401
Flax, hemp, and jute products.....	18,142,735

¹In addition 44,400 pounds of cotton were consumed by shoddy mills.

The census figures thus account for the consumption in the textile industries of 95.9 per cent of that reported as retained for consumption. There are various other uses of cotton the amount of which is not disclosed by any returns to the Census Bureau.

Table 9 exhibits the quantity, cost, and cost per pound of "other domestic" cotton consumed, by states, in 1880, 1890, 1900, and 1905. It is necessary to explain that the returns for 1880 and 1890 include the figures for "cotton small wares" establishments, which are excluded from the figures for the two later enumerations, and that the weight of bales is gross weight, including the "tare."

TABLE 9.—COTTON GOODS¹—QUANTITY AND COST OF DOMESTIC COTTON, OTHER THAN SEA-ISLAND, CONSUMED, BY STATES AND GEOGRAPHIC DIVISIONS: 1880 TO 1905.

STATE.	1905				1900			
	Bales.	Pounds.	Cost.	Cost per pound (cents).	Bales.	Pounds.	Cost.	Cost per pound (cents).
United States.....	3,629,085	1,807,512,278	\$209,972,665	11.62	3,516,080	1,739,714,946	\$116,108,879	6.67
New England states.....	1,558,094	794,520,587	96,227,838	12.11	1,719,622	874,011,257	58,329,174	6.67
Maine.....	130,949	67,023,278	7,721,945	11.52	156,674	79,212,256	5,400,379	6.82
New Hampshire.....	260,928	133,968,552	15,540,653	11.60	271,262	136,805,127	9,394,529	6.87
Vermont.....	9,613	4,887,577	628,710	12.86	12,493	6,410,674	385,461	6.01
Massachusetts.....	906,100	459,112,907	56,814,823	12.37	1,015,305	517,088,846	33,771,414	6.53
Rhode Island.....	161,583	83,667,965	10,112,074	12.09	170,514	86,712,235	6,074,331	7.01
Connecticut.....	88,921	45,860,308	5,409,633	11.80	93,374	47,782,119	3,303,060	6.91
Middle states.....	221,643	111,973,103	13,166,496	11.76	272,947	135,004,971	9,327,774	6.91
New York.....	99,297	50,653,472	6,002,262	11.85	99,064	50,464,770	3,513,661	6.96
New Jersey.....	17,475	8,629,385	1,041,463	12.07	15,872	8,183,469	541,858	6.62
Pennsylvania.....	49,442	24,800,714	2,742,562	11.06	74,382	35,083,214	2,521,768	7.19
Delaware.....	(²)	(³)	(³)	.....	2,675	1,371,563	106,358	7.75
Maryland ³	55,429	27,889,532	3,380,209	12.12	80,954	39,901,955	2,644,129	6.63
Southern states.....	1,813,659	882,918,392	98,456,910	11.15	1,477,775	707,159,521	46,988,926	6.64
Virginia.....	46,296	23,018,074	2,596,425	11.28	38,118	17,832,465	1,154,215	6.47
North Carolina.....	497,947	239,301,308	27,340,926	11.43	404,148	189,984,759	13,604,720	7.16
South Carolina.....	555,467	269,045,002	30,451,158	11.32	485,024	229,899,760	14,909,520	6.49
Georgia.....	402,652	196,250,451	20,927,464	10.66	303,836	145,470,324	9,665,464	6.64
Kentucky.....	17,606	8,938,166	1,051,887	11.77	23,982	11,971,815	770,363	6.43
Tennessee.....	38,332	19,292,275	2,045,800	10.60	30,234	15,028,584	982,146	6.54
Alabama.....	198,820	98,457,775	10,968,856	11.14	134,371	67,987,299	4,206,721	6.19
Mississippi.....	25,640	13,007,625	1,404,662	10.80	20,962	10,363,468	623,576	6.02
Texas.....	18,055	9,206,589	918,977	9.98	18,045	9,304,434	566,517	6.09
All other Southern states ⁴	12,844	6,405,127	750,765	11.72	19,055	9,316,623	505,684	5.43
Western states.....	35,689	18,100,196	2,121,421	11.72	45,736	23,539,197	1,463,005	6.22
Ohio.....	.....	.....	.....	.....	.....	.....	.....	.....
Indiana.....	17,582	8,872,158	1,058,538	11.93	19,884	10,283,614	608,822	5.92
Illinois.....	.....	.....	.....	.....	.....	.....	.....	.....
Wisconsin.....	5,478	2,745,629	341,234	12.43	4,565	2,316,727	145,773	6.29
All other Western states ⁵	12,629	6,482,409	721,649	11.13	21,287	10,938,856	708,410	6.48

¹Includes cotton small wares in 1890 and 1880.

²Included in Maryland.

³Includes Delaware in 1905.

⁴Includes states as follows: 1905—Arkansas, Louisiana. 1900—Arkansas, Louisiana, West Virginia. 1890—Arkansas, Louisiana, Texas. 1880—Arkansas, Florida, Louisiana.

⁵Includes states as follows: 1905—California, Illinois, Missouri. 1900—California, Colorado, Illinois, Missouri, Nebraska. 1890—California, Iowa, Missouri. 1880—Michigan, Minnesota, Missouri, Utah.

TABLE 9.—COTTON GOODS¹—QUANTITY AND COST OF DOMESTIC COTTON, OTHER THAN SEA-ISLAND, CONSUMED, BY STATES AND GEOGRAPHIC DIVISIONS: 1880 TO 1905—Continued.

STATE.	1890				1880 ²			
	Bales.	Pounds.	Cost.	Cost per pound (cents).	Bales.	Pounds.	Cost.	Cost per pound (cents).
United States.....	2,231,385	1,103,492,910	\$114,337,802	10.36	1,570,344	750,343,981	\$86,945,725	11.59
New England states.....	1,405,637	704,792,220	74,683,860	10.60	1,129,498	541,373,880	63,169,434	11.67
Maine.....	132,504	65,717,252	7,053,168	10.73	112,381	54,185,061	6,234,901	11.51
New Hampshire.....	214,034	107,319,124	11,203,742	10.44	157,673	76,386,499	8,629,063	11.30
Vermont.....	8,954	4,647,889	498,348	10.72	7,404	3,562,088	458,607	12.87
Massachusetts.....	765,773	383,539,221	40,206,887	10.48	574,857	273,718,889	31,107,154	11.36
Rhode Island.....	186,558	94,555,788	10,446,155	11.05	167,480	81,137,172	10,457,770	12.89
Connecticut.....	97,814	49,012,946	5,275,560	10.76	109,703	52,384,171	6,281,939	11.99
Middle states.....	251,260	123,630,916	12,917,244	10.45	228,729	109,321,428	13,258,526	12.13
New York.....	78,171	39,038,689	4,192,105	10.74	64,614	31,656,594	3,981,106	12.53
New Jersey.....	16,482	8,231,147	905,524	11.00	21,069	9,950,609	1,319,422	13.26
Pennsylvania.....	92,705	44,629,588	4,371,693	9.80	83,997	40,311,809	4,749,428	11.78
Delaware.....	8,876	4,465,825	475,490	10.65	7,512	3,236,184	427,855	13.22
Maryland.....	55,026	27,265,667	2,972,432	10.90	51,537	24,166,232	2,780,715	11.51
Southern states.....	526,856	250,837,646	24,508,776	9.77	182,349	84,528,757	8,890,408	10.52
Virginia.....	22,731	10,616,206	1,080,773	10.18	11,461	5,087,519	601,796	11.83
North Carolina.....	114,371	53,546,289	5,396,974	10.08	27,642	11,832,641	1,125,984	9.52
South Carolina.....	133,342	64,000,600	6,242,598	9.75	33,624	15,601,005	1,723,187	11.05
Georgia.....	145,859	69,139,410	6,663,560	9.64	71,389	33,757,199	3,591,554	10.64
Kentucky.....	11,980	5,751,305	554,206	9.64	4,060	1,882,234	188,856	10.03
Tennessee.....	33,114	15,779,360	1,554,851	9.85	10,436	4,944,279	508,305	10.28
Alabama.....	29,962	14,726,454	1,372,058	9.32	14,702	7,271,791	729,202	10.03
Mississippi.....	17,366	8,449,834	793,600	9.39	6,411	2,881,853	301,226	10.45
Texas.....					246	119,986	11,280	9.40
All other Southern states.....	18,131	8,828,188	850,156	9.63	2,388	1,150,250	109,018	9.48
Western states.....	47,632	24,232,128	2,227,922	9.19	29,768	15,119,916	1,627,357	10.76
Ohio.....	11,023	5,840,078	383,556	6.57	5,323	2,506,182	258,198	10.30
Indiana.....	16,306	8,240,454	798,178	9.69	11,558	6,364,887	679,911	10.68
Illinois.....	6,405	3,267,188	312,621	9.57	2,261	1,099,130	110,969	10.10
Wisconsin.....	6,924	3,470,388	359,117	10.35	3,173	1,541,797	180,072	11.08
All other Western states.....	6,974	3,414,040	374,450	10.97	7,453	3,607,920	398,207	11.40

¹ Includes cotton small wares in 1890 and 1880.² Includes sea-island, Egyptian, and other foreign.

The average cost of cotton reported for the census of 1900 was extremely low and the cost of that consumed during the census year now under consideration was unusually high. The purpose of the foregoing table is to compare the average cost of the cotton consumed in the several states and geographic divisions. The use of somewhat higher grades of cotton in New England than that consumed at the South probably explains more of the difference in cost per pound in the two sections than in the cost of freight; but in the case of Texas, which is not a large manufacturing state, the nearness of the supply doubtless accounts for the whole of the difference. The large manufacture of sewing thread in New Jersey is indicated by the high average cost of material. The spinning of fine yarns in Massachusetts and Rhode Island is also indicated by the cost of cotton used in those states. The average cost of cotton to the mills in the chief manufacturing states of the South shows remarkable uniformity.

Cotton yarn purchased.—During the census year the amount of cotton yarn purchased by the cotton factories which either did not spin any yarn or did not spin enough for their own wants was 91,594,658

pounds, at a cost of \$21,601,483. This compares with 83,832,216 pounds, valued at \$15,749,536, in 1900, and with 48,779,715 pounds, valued at \$10,853,536, in 1890. The figures of quantity alone are not of any significance, since the value of yarn of the same count and quality depends largely upon the cost of the raw cotton. The fact that the value of yarn so purchased increased 37.2 per cent from 1900 to 1905, whereas the amount increased but little more than 9 per cent, does not necessarily imply that the average fineness of the yarn was greater, but merely that the price of cotton was higher in 1904 than in 1899–1900. The American mill system renders this item, large though it is in itself, relatively insignificant. It remains true that the establishments which make use of yarn not spun by themselves are of three classes, which, in the order of their importance, are: (1) Those which weave only; (2) those which spin and weave, but produce less yarn than they require; and (3) those which purchase fine yarn to be twisted into sewing thread. The extensive weaving mills of Pennsylvania furnish a market for more than 37,000,000 pounds of the total above mentioned, or more than 40 per cent of the whole. But the yarn consumed in

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those mills is not so fine as that used by the gingham weaving mills of New England or by the sewing thread mills of New Jersey, as is evidenced by the fact that the average cost per pound of the yarn purchased by Pennsylvania concerns was but 21.5 cents, as against 27.8 cents per pound paid by Massachusetts establishments and 25.1 cents by New Jersey mills. As is noted in the remarks upon products, the amount of yarn made for sale is by no means fully accounted for in this item of yarn purchased by cotton mills. The increase in the amount used by Pennsylvania does not show a large increase over that reported in 1900—only a little more than 750,000 pounds, or 2.1 per cent.

Yarns other than cotton.—There seems to have been a considerable diminution in the amount of other yarns than cotton for 1905 as compared with 1900. It is of course impossible to ascertain whether the change is an accidental one, occurring in the practice of a single year, or a permanent one. The following statement shows the quantity and cost of such yarns at the last three censuses:

Yarns other than cotton: 1890 to 1905.

KIND.	1905		1900		1890	
	Pounds.	Cost.	Pounds.	Cost.	Pounds.	Cost.
Total.....	3,098,801	\$2,201,146	3,803,774	\$2,896,573	677,954	\$509,682
Silk.....	241,332	831,477	298,716	1,158,321	32,851	154,336
Spun silk.....	128,243	314,186	208,403	625,658	18,583	83,064
Linen.....	515,897	143,542	1,575,403	350,962	17,722	9,823
Worsted.....	419,519	306,109	687,019	415,904	87,257	62,514
Woolen.....	979,385	466,120	435,361	176,467	196,874	131,657
Merino.....	76,705	32,856	87,064	21,946		
Mohair.....	54,736	43,152	21,398	21,435		
Camel's hair.....			134,595	62,838		
Jute.....	380,088	24,647	220,507	17,967	99,938	8,976
Flax.....	185,050	4,230				
Mercerized cotton.....	7,024	5,636	16,233	15,752		
Tussah.....			15,918	19,102		
Other yarn.....	110,822	29,191	103,157	10,221	224,729	59,312

PRODUCTS.

Table 10 exhibits in detail, by classes, the products of cotton mills during the census year, as compared with the returns in 1900 and 1890, showing the kinds, quantities, and values of each class of goods.

TABLE 10.—COTTON GOODS—PRODUCTS,¹ BY KIND, QUANTITY, AND VALUE: 1890 TO 1905.

KIND.	1905		1900		1890	
	Square yards.	Value.	Square yards.	Value.	Square yards.	Value.
Aggregate value.....		\$442,451,218		\$332,806,156		\$267,981,724
Woven goods, total.....	5,070,028,520	320,382,367	4,523,395,616	243,218,155	3,004,320,473	193,874,275
Plain cloths for printing or converting, total.....	1,818,216,172	80,311,612	1,581,613,827	57,780,940	955,294,320	43,550,174
Not finer than No. 28 warp.....	812,249,764	32,945,694	1,056,278,952	35,616,575	(2)	(2)
Finer than No. 28 warp.....	1,005,966,408	47,365,918	525,334,875	22,164,365	(2)	(2)
Brown or bleached sheetings and shirtings.....	1,172,309,182	61,253,376	1,212,403,048	55,513,032	962,238,062	55,193,439
Ginghams.....	302,316,132	22,471,867	278,392,708	16,179,200	268,996,715	20,686,390
Ticks, denims, and stripes.....	256,375,486	23,797,578	181,800,853	16,446,633	167,121,426	16,987,546
Drills.....	194,735,303	12,596,063	237,206,549	11,862,794	* 534,020,091	* 23,601,239
Twills and sateens.....	366,142,513	23,701,395	235,360,518	14,301,302		
Cottonades.....	25,362,946	2,998,971	26,323,947	2,791,431		
Napped fabrics.....	330,808,140	26,108,315	268,852,716	18,231,044	* 132,524,706	* 10,574,924
Fancy woven fabrics.....	306,254,685	28,486,342	237,841,603	21,066,310	127,373,179	12,545,929
Corduroy, cotton velvet, and plush.....	4,790,573	7,961,523	7,961,523	2,682,017		
Duck, total.....	122,601,212	17,005,982	129,234,076	14,263,008	55,192,538	8,664,395
Sail.....	9,586,519	1,540,745	11,750,151	2,216,371		
Other.....	113,014,693	15,465,237	117,483,925	12,046,657		
Bags and bagging.....	57,067,663	3,953,732	32,739,616	2,554,192		
Mosquito and other netting.....	36,232,918	794,953	41,885,023	875,868		
Upholstery goods, total.....	65,592,212	12,111,698	51,279,609	8,676,384	1,559,436	2,070,239
Tapestries (piece goods and curtains).....	9,605,006	4,242,506	10,131,538	4,123,600	642,061	354,987
Lace and lace curtains.....	53,511,222	7,208,211	37,825,198	3,585,138	(2)	1,225,364
Chenille curtains.....	268,168	93,196	805,414	257,840	666,405	360,706
Other, including covers.....	2,207,816	567,785	2,517,459	703,806	250,970	129,182
Yarns for sale.....	Pounds.	79,885,387	Pounds.	55,188,663	Pounds.	33,247,596
Sewing cotton.....	364,472,753	15,043,043	332,186,012	11,825,218	166,397,003	11,637,500
Twine.....	17,163,741	1,282,947	15,741,062	1,475,146	13,868,309	1,364,300
Tape and webbing.....	6,676,573	40,546	11,132,250	328,801	8,533,730	2,094,232
Batting and wadding.....	(2)	10,165,850	(2)	864,016	20,470,556	5,679,701
Waste for sale.....	10,165,850	10,049,037	10,567,700	5,552,234	141,109,597	(2)
Other products of cotton.....	247,335,102	2,605,801	270,100,756	5,154,170	(2)	(2)
All other products.....	(2)	11,979,747	(2)	9,199,753		20,084,120

¹ Includes cotton small wares in 1890.

* No separation of print cloths was made in 1890.

* Drills, twills, and sateens.

* Not reported separately.

* Cotton flannels.

* Not reported.

The total value of all the goods reached the sum of \$442,451,218, as compared with \$332,806,156 in 1900, an apparent increase of almost exactly 33 per cent. But it is to be remembered that owing to the unusually high price of cotton, much higher than the price in 1900, the cost of goods was also higher. If, for example, we take the average value per square

yard of the coarser variety of print cloths, we find it to have been 4.056 cents as compared with 3.372 cents in 1900; or, in the case of the great class known as sheetings and shirtings, it was 5.225 cents in 1905 as against 4.579 cents in 1900. There was, in fact, an increase of more than 500,000,000 square yards in the total of woven goods—from 4,523,395,616 in 1900 to

5,070,028,520 in 1905, or 12.1 per cent; and of yarn spun for sale, of more than 32,000,000 pounds, or 9.7 per cent.

Woven goods.—The details of the table show some interesting fluctuations. In the first place, there is disclosed a remarkable decrease in the quantity of the class of goods just referred to, namely, the cloths for printing or converting, not finer than No. 28 warp. The amount decreased almost 250,000,000 yards, or more than 23 per cent. On seeking for the explanation we discover that the quantity produced in Massachusetts decreased from 687,235,050 square yards to 436,586,015, a decrease which accounts for more than the entire diminution in the whole country. The result was undoubtedly due to the long strike in Fall River, the largest producer of print cloths in the United States, the consequences of which meet us at almost every turn in the consideration of these statistics. Yet there was, even in Massachusetts, an increase in the production of the finer print cloths—that is to say, the decrease in production in that state was not so large as appears from the statistics of the coarser goods, because there was an increase in the fineness of spinning, which caused a moderate increase in that class and a moderate decrease in the other class, and the rest of the decrease is to be attributed to the long stoppage of the factories. But it is also to be observed that the great augmentation of the amount of finer print cloths was made by the southern mills. In 1900 they produced 139,201,156 square yards of this class of goods; in 1905 the product reported is 445,951,035 square yards, and they thus contributed more than three-fifths of the increase for the whole country.

In the great class of sheetings and shirtings there was a small decrease, about 40,000,000 square yards, or 3.3 per cent. In this case, also, nearly the whole loss is accounted for by Massachusetts, and was doubtless caused by the high price of cotton, which rendered production unprofitable, whereas the southern mills increased their product from 644,577,686 yards to 737,049,905. But when we turn to the classes of goods which involve fine spinning or complicated weaving, it is evident that the table does not indicate a decline of production in New England, but rather a movement of the industry toward finer and more costly fabrics. For example, the quantity of twills and sateens produced in New England increased from 198,815,724 square yards to 277,867,179; and in Massachusetts, from 86,668,240 to 136,315,041 square yards. There was also an increase in the production of gingham, napped fabrics, and other classes of goods. A similar movement toward higher varieties of goods is also observable in the southern returns,

as, for example, in fancy woven fabrics, the quantity of which has increased more than threefold in five years.

It still remains true that the great demand for cotton goods is for those woven from the low counts of yarn. Almost three-fourths of the yardage of all the woven goods reported falls under the classification of coarse or medium goods—print cloths, sheetings and shirtings, drills, ticks, denims and stripes, duck and bagging. Yet this fact is not inconsistent with another, namely, that manufacturers can now find, and will continue to find, profit and an increasing market as they gradually turn to finer spinning.

There are other facts developed in a study of the woven products that deserve mention, not so much because of their relative importance commercially as because they denote an increasing tendency toward the diversification and extension of the industry.

Prominent among these collateral branches of the industry are the manufacture of lace and lace curtains and of upholstery goods. Regarding the first of these branches a comparative statement is presented in Table 11.

TABLE 11.—*Lace and lace curtain manufactures—comparative summary: 1905 and 1900.*

	1905	1900
Number of establishments.....	13	9
Total capital.....	\$11,295,845	\$3,906,108
Salaried officials, clerks, etc., number.....	217	96
Salaries.....	\$387,400	\$158,343
Wage-earners, average number.....	4,502	2,383
Total wages.....	\$1,890,397	\$866,237
Men 16 years and over.....	1,880	857
Wages.....	\$1,079,448	\$511,326
Women 16 years and over.....	2,272	1,104
Wages.....	\$736,216	\$304,315
Children under 16 years.....	350	422
Wages.....	\$74,733	\$50,596
Miscellaneous expenses.....	\$673,587	\$224,127
Materials used, total cost.....	\$3,111,113	\$1,550,026
Cotton yarn—		
Pounds.....	7,536,335	4,918,254
Cost.....	\$2,417,539	\$1,158,244
All other materials.....	\$693,574	\$391,782
Products, total value.....	\$7,235,170	\$3,591,230
Lace and lace curtains—		
Square yards.....	153,451,349	37,825,198
Value.....	\$7,203,422	\$3,585,138
All other products.....	\$31,748	\$6,092
Lace machines.....	417	133

¹ In addition, 59,873 square yards of lace and lace curtains, to the value of \$4,789, were made by establishments engaged primarily in the manufacture of other cotton goods, and lace and lace curtains, to the value of \$820,766, by carpet and rug manufacturers.

Roughly speaking, the industry has doubled in the last census interval, for the only important items in the above table of which the remark is not true are the number of establishments and the quantity of materials and products. Capital shows an increase of 189.2 per cent; the cost of materials, 100.7 per cent; the value of products, 101.5 per cent; and wages, 118.2 per cent. Although the aggregate number both of men and of women has more than doubled, the somewhat lower average rate of increase in the whole number of

employees than in the other items is due solely to a decrease in the number of children. The quantity of lace and lace curtains increased from 37,825,198 square yards to 53,451,349 square yards, or 41.3 per cent.

Table 12 shows the condition of the manufacture of upholstery goods, exclusive of lace and lace curtains, in 1900 and 1905.

TABLE 12.—*Upholstery manufactures—comparative summary:*
1905 and 1900.

	1905	1900
Number of establishments.....	50	41
Total capital.....	\$4,106,322	\$3,490,875
Salaried officials, clerks, etc., number.....	150	162
Salaries.....	\$222,889	\$216,343
Wage-earners, average number.....	2,922	3,057
Total wages.....	\$1,231,240	\$1,222,666
Men 16 years and over.....	1,641	1,769
Wages.....	\$899,950	\$910,660
Women 16 years and over.....	1,126	965
Wages.....	\$306,141	\$264,787
Children under 16 years.....	155	323
Wages.....	\$25,149	\$47,219
Miscellaneous expenses.....	\$657,677	\$537,543
Materials used, total cost.....	\$2,479,356	\$2,543,714
Cotton yarn—		
Pounds.....	9,429,818	9,226,285
Cost.....	\$1,902,920	\$1,807,453
Reeled and spun silk—		
Pounds.....	66,705	173,998
Cost.....	\$173,353	\$463,096
All other yarns—		
Pounds.....	340,071	575,617
Cost.....	\$85,380	\$106,578
All other materials.....	\$317,703	\$166,587
Products, total value.....	\$5,020,494	\$5,094,683
Upholstery goods—		
Tapestries.....		
Square yards.....	19,528,648	29,681,291
Value.....	\$4,232,428	\$4,072,273
Chenille curtains—		
Square yards.....	229,418	805,414
Value.....	\$85,029	\$257,840
Other, including covers—		
Square yards.....	1,280,447	1,583,981
Value.....	\$511,240	\$570,698
All other products.....	\$191,797	\$193,872
Looms.....	2,273	2,158

¹ In addition, 76,358 square yards of tapestries, to the value of \$10,078, were made by establishments engaged primarily in the manufacture of other cotton goods and tapestries to the value of \$122,778, by carpet and rug manufacturers.

² In addition, 450,247 square yards of tapestries, to the value of \$51,327, were made by establishments engaged primarily in the manufacture of other cotton goods.

³ In addition, 38,750 square yards of chenille curtains, to the value of \$8,167, were made by establishments engaged primarily in the manufacture of other cotton goods and chenille curtains to the value of \$45,964, by carpet and rug manufacturers.

⁴ In addition, 927,369 square yards of this class of products, to the value of \$56,545, were made by establishments engaged primarily in the manufacture of other cotton goods.

⁵ In addition, 933,478 square yards of this class of products, to the value of \$133,108, were made by establishments engaged primarily in the manufacture of other cotton goods.

The changes in this case do not indicate great progress since the last census. Indeed many of the items show a decrease, for although there are more establishments and a larger amount of capital, there was a slight decline in the number of hands employed, in the cost of materials, and in the value of products; there was a very small increase in the amount of wages. The quantity of all of the classes of products specified was smaller at the census of 1905 than in 1900.

Referring again to Table 10, it will be noted that the

quantity of napped fabrics increased from 268,852,716 yards in 1900 to 330,808,140 yards in 1905. Corduroy, cotton velvet, and plush increased from 7,961,523 yards in 1900 to 16,014,556 yards in 1905. The detailed tables show for the first time the amount of linens and toweling; 1,084,640 square yards of linen toweling and other linen goods, and 40,280,292 square yards of towels of other materials, chiefly cotton, were reported at the census of 1905.

Other products.—A moderate increase is to be noted in the larger items of products other than woven goods. Of yarns for sale, 364,472,753 pounds are reported, as compared with 332,186,012 in 1900, an increase of less than 10 per cent. So long as the present system in the cotton manufacture is maintained it is likely that the increase in this class of products will be slow. There is practically no exportation of American cotton yarn, and there are only 295 mills devoted exclusively to spinning. The demand for yarn comes from hosiery mills which do not produce enough for their own use; from woolen and worsted mills, which use cotton warps; from the manufacturers of the goods classed as cotton small wares; and from such industries as the winding of wire to insulate it for electrical purposes. Sewing thread also is made for domestic consumption only, and is not exported. The amount therefore can not increase at a rate much more rapid than that of the population, without glutting the market.

Dyeing and finishing.—Owing to the system which prevails in the United States of combining in the operation of one establishment processes which in other countries are regarded as quite distinct the one from the other, it is necessary to treat the processes of dyeing and finishing cloth as a part of the textile industry. They constitute, nevertheless, industries as independent of the textile manufacture proper as the cutting and making of articles of wearing apparel. The textile process is complete when the yarn is spun or the cloth woven. It will be seen from Table 13 that by far the larger part of the work included under the head of dyeing and finishing is performed in independent establishments. But inasmuch as a large number of spinning and weaving mills, perhaps a majority of them, add bleaching and dyeing to their processes, and since a few of them print the fabrics they weave, or mercerize their yarn and cloth, it is necessary, in order to complete the view of the operations of the mills, to include these operations in a discussion of the cotton manufacture.

Table 13 shows the amount of cloth, yarn, and stock bleached, dyed, printed, or mercerized in cotton mills and in independent establishments, as reported for 1900 and 1905.

TABLE 13.—DYEING AND FINISHING IN COTTON MILLS¹ AND IN INDEPENDENT ESTABLISHMENTS: 1905 AND 1900.

	TOTAL.				IN COTTON MILLS.		IN INDEPENDENT ESTABLISHMENTS.	
	1905		1900		1905 (square yards).	1900 (square yards).	1905 (square yards).	1900 (square yards).
	Square yards.	Added value.	Square yards.	Added value.				
Cloth:								
Total treated.....	2,864,681,818	\$32,165,840	3,089,133,809	\$38,187,700	422,156,932	616,327,259	2,442,524,886	2,472,806,550
Bleached.....	1,151,932,531	8,315,162	1,162,593,900	7,623,875	163,850,648	197,691,533	988,081,883	964,902,387
Dyed.....	696,130,937	9,762,221	685,374,965	8,923,925	72,715,539	125,894,626	623,415,398	559,480,339
Printed.....	976,108,191	13,111,740	1,233,191,438	21,239,782	185,040,034	292,741,100	791,068,157	940,450,338
Mercerized.....	40,510,159	976,717	² 7,973,506	² 400,118	550,711	.....	39,959,448	7,973,506
Yarn:					Pounds.	Pounds.	Pounds.	Pounds.
Total treated.....	194,295,941	6,399,803	221,512,803	8,431,849	132,491,721	153,759,879	61,804,220	67,752,924
Bleached.....	38,031,731	663,143	² 12,780,518	² 252,635	26,323,599	(³)	11,708,132	12,780,518
Dyed.....	152,799,186	5,497,720	205,713,712	7,691,268	105,122,713	151,610,157	47,676,473	54,103,555
Mercerized.....	3,465,024	238,940	3,018,573	487,946	1,045,409	2,149,722	2,419,615	868,851
Cotton stock:								
Total treated.....	87,295,304	2,088,773	² 12,767,350	² 577,484	77,387,860	(³)	9,907,444	12,767,350
Bleached.....	13,202,161	257,109	² 300,650	² 4,823	12,815,649	(³)	386,512	300,650
Dyed.....	74,093,143	1,831,664	² 12,466,700	² 572,661	64,572,211	(³)	9,520,932	12,466,700

¹ Exclusive of cotton small wares.² In independent establishments only.³ Not reported.

The foregoing statistics indicate a considerable decrease in the quantity of yarn and cloth treated in 1905 as compared with 1900. But an examination of the figures in detail discloses the fact that so far as cloth was concerned the great decline was in printing—more than 250,000,000 yards less in the later than in the earlier year—and in bleaching, a process to which cloth to be printed is first subjected. We have here another consequence of the Fall River strike, which greatly reduced the quantity of cloth available for printing. There was a slight increase in the quantity of cotton cloth dyed, a fact which has no special significance. The increased popularity of mercerized goods is indicated by the large addition to the amount so treated in 1905, the total having been more than 40,000,000 yards, as against less than 8,000,000 in 1900.

Taking the aggregate figures of materials treated, we see that the quantity of cloth treated in cotton mills was very nearly 20 per cent of the whole in 1900, but declined to 14.7 per cent in 1905. Of yarn, much the largest part is treated in cotton mills proper and the proportion of such mills and of independent establishments at the two enumerations was practically unchanged—69.4 per cent in cotton mills in 1900 and 68.2 per cent in 1905. The changes indicated, where there are changes, have little or no significance, since the situation in 1904 was such as to make the year an unsuitable one for purposes of comparison.

Fineness of goods.—At the census of 1880 an attempt was made for the first time to ascertain the average number of cotton spun in the mills of the country. The facts at the disposal of the late Edward Atkinson, the special agent for the collection of cotton manufacturing statistics at that time, were exceedingly meager and

the only method of ascertaining the fineness of yarn was untrustworthy. At each of the two succeeding censuses another method was available, owing to the better form of inquiry. But it was evident to the present writer, who made the reports both in 1890 and in 1900, that ascertaining the average number of yarn is not of sufficient value to make the inquiry worth while. Suppose there are two mills each of which produces 1,000,000 pounds of yarn, the one of No. 10, the other of No. 30. The average of those mills may be said to be No. 20. If now a third mill is erected which spins 1,000,000 pounds of No. 20, the tendency certainly is toward finer spinning, but the average will continue to be No. 20. Suppose now the mill which spins No. 10 is burned. The average number jumps to No. 25, although there has been no real increase of finer spinning. It will presently be seen that a real tendency toward finer spinning between the years 1890 and 1900 was marked by movements corresponding in some degree to those in the preceding hypothetical case. Inasmuch as under such circumstances the average number becomes meaningless, no attempt has been made at this census to ascertain it. An alternative inquiry, which was introduced both in 1890 and in 1900, has been substituted for it.

Assuming arbitrarily that yarn of No. 20 and under may be classed as coarse, the numbers from 21 to 40, inclusive, as medium, and those above 40, as fine, the amount of yarn of each of those three classes has been ascertained. The result gives us, by states, by geographic divisions, and for the whole country, an indication of the proportional relation of the three classes of yarns, and the general tendency. An

increase in the amount of fine spinning becomes a perceptible fact which is not obscured by a larger increase in the production of coarser yarn.

Taking the country as a whole the percentage of coarse, medium, and fine yarns, in 1890, 1900, and 1905 was as follows:

	1905 (per cent).	1900 (per cent).	1890 (per cent).
	100.00	100.00	100.00
No. 20 and under, coarse.....	52.55	57.93	53.26
No. 21 to 40, medium.....	39.36	36.81	42.88
No. 41 and over, fine.....	8.09	5.26	3.86

It is needless to say that there was no real decrease in the amount of medium yarn produced in 1900 as compared with 1890, but the actual increase was concealed, in the calculation of percentages, by a prodigious increase of more than 100 per cent of coarse yarn spun in southern mills during the later year. So, also, the real decrease in coarse yarn from 1900 to 1905 was less than the above percentages indicate. The entire decrease of this coarse spinning is accounted for in the New England states. Table 14 presents the actual weight of yarn spun of each of the three classes in the census years 1900 and 1905.

TABLE 14.—YARNS SPUN, CLASSIFIED BY GRADES, BY STATES AND GEOGRAPHIC DIVISIONS: 1905 AND 1900.

STATE.	TOTAL (POUNDS).		NO. 20 AND UNDER, COARSE (POUNDS).		NO. 21 TO 40, MEDIUM (POUNDS).		NO. 41 AND OVER, FINE (POUNDS).	
	1905	1900	1905	1900	1905	1900	1905	1900
United States.....	1,529,483,718	1,467,565,971	803,764,679	850,203,953	601,971,584	540,166,147	123,747,455	77,195,871
New England states.....	667,948,806	745,990,534	249,218,058	304,842,149	317,476,791	369,423,518	101,253,957	71,724,867
Maine.....	55,988,081	67,003,387	18,715,275	40,530,149	32,694,111	23,608,965	4,578,695	2,864,273
New Hampshire.....	108,439,062	108,968,243	66,579,541	79,300,869	39,680,978	29,667,374	2,178,543	.....
Vermont.....	3,799,474	5,432,983	92,675	1,525,033	3,663,711	3,907,950	43,098	.....
Massachusetts.....	381,108,770	442,538,758	141,986,900	164,190,352	178,143,116	235,617,217	60,978,754	42,731,189
Rhode Island.....	74,990,890	77,238,360	8,775,161	3,661,667	44,925,924	57,341,561	21,289,805	16,235,132
Connecticut.....	43,622,529	44,808,803	13,068,506	15,634,079	18,368,951	19,280,461	12,185,072	9,894,273
Middle states.....	103,056,337	117,856,490	68,769,518	86,166,567	29,651,774	27,105,119	4,635,045	4,584,804
New York.....	43,797,990	42,014,730	21,667,253	25,241,091	21,500,176	16,443,639	630,561	330,000
New Jersey.....	12,550,060	12,230,347	5,242,201	5,366,044	3,531,390	2,879,499	3,726,469	3,884,804
Pennsylvania.....	23,167,717	32,468,390	18,445,420	25,344,251	4,424,282	6,754,139	278,015	370,000
Maryland ¹	23,550,570	31,145,023	23,414,644	30,215,181	135,926	927,842	.....	.....
Southern states.....	745,419,375	586,546,002	476,894,080	445,967,312	250,666,842	139,691,990	17,858,453	886,200
Virginia.....	18,921,483	15,110,233	9,576,561	13,457,870	9,344,922	1,652,363	.....	.....
North Carolina.....	202,362,469	156,435,539	122,105,707	99,021,341	74,691,014	56,527,998	5,565,748	886,200
South Carolina.....	230,516,645	195,930,440	108,230,002	132,903,687	112,001,986	63,026,753	10,284,657	.....
Georgia.....	161,616,803	116,967,671	136,058,017	108,276,364	24,864,304	8,691,307	694,282	.....
Alabama.....	84,555,024	57,866,762	64,938,634	51,325,723	18,698,617	6,541,039	957,773	.....
Mississippi.....	10,904,221	7,909,625	8,144,612	7,909,625	2,586,463	.....	173,146	.....
Louisiana ²	5,561,703	7,891,495	5,082,790	7,891,495	478,913	.....	.....	.....
Texas.....	7,630,050	8,210,626	5,378,825	8,210,626	2,251,225	.....	.....	.....
Kentucky.....	7,305,440	9,071,044	5,403,458	5,818,514	1,901,982	3,252,530	.....	.....
Tennessee.....	16,005,737	11,152,567	11,975,474	11,152,567	3,847,416	.....	182,847	.....
Western states.....	13,059,200	17,172,945	8,883,023	13,227,425	4,176,177	3,945,520	.....	.....
Indiana.....	6,151,356	8,666,072	3,065,950	8,666,072	3,085,406	.....	.....	.....
Wisconsin.....	1,700,000	1,765,128	1,650,000	958,756	50,000	776,372	.....	.....
All other Western states ³	5,207,844	6,741,745	4,167,073	3,572,597	1,040,771	3,169,148	.....	.....

¹Includes Delaware.

²Includes Arkansas.

³Includes states as follows: 1905—California, Illinois, and Missouri. 1900—California, Colorado, Illinois, Missouri, and Nebraska.

The foregoing table exhibits, more clearly than almost any other in this report, the tendency at present to be observed in the cotton manufacturing industry of the country. It would indicate that tendency with still greater exactitude if it were not for the fact so many times mentioned that serious labor troubles in New England in 1904 make that a bad year for comparisons of any sort. It will be seen that in the country as a whole there was a decrease of about 6 per cent in the spinning of coarse yarns, an increase of more than 11 per cent in medium yarns, and an increase of over 60 per cent in fine yarns. It is a remarkable fact that there was a decrease in the amount of coarse yarns produced in 1905 as compared with 1900 in every New England and Middle state with the single excep-

tion of Rhode Island, and a decline is also to be observed in the returns for Virginia, South Carolina, Louisiana, Texas, and Kentucky. There was a decrease of more than 57,000,000 pounds in the production by Massachusetts of medium yarns, which are woven into the print cloth product of Fall River, and Rhode Island contributed a loss of more than 12,000,000 pounds. But in the South the increase was enormous. In every state of that section with the exception of Kentucky, which is not an important manufacturing state, there was a large gain. In 1900 the South as a whole produced less than 26 per cent of the total amount of medium yarns. In 1905 it produced more than 41 per cent. It is true that this percentage was increased largely by exceptional circumstances in the North, but

the ratio would have been remarkable in any event. The figures showing the production of fine yarns are highly significant. Five years ago New England mills turned out 92.9 per cent of all the yarn of that class. At present, although the actual production increased, their proportion is less than 82 per cent. The South, which returned in 1900 barely 1 per cent, all from one state, now reports fine spinning in six states, and more than 14 per cent of the total quantity produced in the United States. Yet these facts do not prove or even suggest that the fine spinning of the country is about to be transferred to the South, for the increased production in Massachusetts alone in the five years exceeds the entire amount reported by the South, and the increase in New England as a whole is but little less than twice the southern production. But taken as a whole, the unmistakable indication of the table here presented is that a decided movement toward finer goods has been made and is still in progress.

POWER.

The facts relating to the power employed in operating the cotton factories of the United States in 1905 present only a single novelty. It is the almost universal practice of manufacturers to own the land and buildings they occupy. Of a total of 1,031,843 horsepower in all the factories of the country, the amount hired by manufacturers was only 22,785 horsepower, or 2.2 per cent in 1905, as compared with 7,582 horsepower, or nine-tenths of 1 per cent of the 805,126 horsepower reported at the census of 1900. It seems, then, that whereas the manufacturers have added 211,514 horsepower during the five years to the power owned, the increase of the power rented was about one-fourteenth of the amount.

The details of the kind of power employed develop the single novelty mentioned above. In 1900 the number of electric motors owned was only 275 and the horsepower reported was 15,268. At the present census 767 electric motors are reported, with an aggregate of 52,734 horsepower. It is rather significant that the average horsepower of the motors has increased from 56 to 69. If we assume that the motors used in 1900 are still employed and are among those now reported, the average horsepower of the 492 new motors is 76. The number of such motors in New England has increased from 86 to 303 and the horsepower from 7,126 to 22,455. The present average horsepower is 74 in those states. In the South the number has increased from 157 to 329, the horsepower from 7,835 to 28,078, and the average horsepower from 50 to 85. It is evident that a decided change is in progress in the use of power. It may be suggested that in this statement of power there is a certain amount of duplication, for in all probability the motive power of many of the new electric motors is

derived from engines or water wheels, and both may have been reported where only one of the two should have appeared. It is surely a remarkable fact that electricity as a driving power has now reached one-fifth of the power developed by water wheels. It still remains true that steampower leads, and although the percentage of increase of electric motor power was more than 200 per cent, the actual increase in the five years was about 175,000 steam horsepower against nearly 37,500 horsepower accredited to electricity.

MACHINERY.

No important improvement in cotton spindles or looms has been sufficiently successful to secure adoption to any large extent during the past five years, although innovations and improvements previously successful have been largely introduced, nor is any material change to be noted in the tendency of manufacturers to adopt special forms of such machinery. The margin between profit and loss in a cotton factory amounts to but a fraction of a cent on a pound of the raw material, and therefore, in order to reduce the cost of production to the lowest figure, the manufacturer must provide himself with the most efficient machinery and must send inexorably to the scrap heap spindles and looms that do not enable him to produce as large a quantity of goods at as low a cost as will enable him to compete successfully with his neighbors. This necessity results in a constant replacement of spindles by others of higher speed and excellence and the adoption of all improvements in looms that will increase the output of cloth for a dollar of the weaver's wages. Movements in accordance with these principles are the only ones to be mentioned in a consideration of the machinery history of the five years under consideration.

Spindles.—The progress of the cotton industry and its relative importance in any region or country are estimated by the number of active spindles. Although it is not a strictly accurate measure, it is the best available. For there are fast spindles and slow; spindles employed upon fine yarns are of greater importance industrially than those making coarse yarns; and these circumstances detract somewhat from the value of the spindle as a unit of capacity. But, on the other hand, the amount of cotton consumed would constitute a much rougher and more inaccurate measure, since spindles making the coarsest yarns consume the most cotton.

Inasmuch as the real magnitude of the cotton manufacturing industry is not represented by the spindle capacity of mills which are classified strictly as cotton factories, the first table to be presented shows the number of cotton spindles operated in all branches of the textile industry in 1900 and 1905, and the total for 1890.

TABLE 15.—NUMBER OF COTTON SPINDLES IN THE TEXTILE INDUSTRY, BY STATES AND GEOGRAPHIC DIVISIONS: 1890 TO 1905.

STATE.	1905						1900						1890 (total).
	Total.	In cotton mills.	In hosiery and knit goods mills. ¹	In worsted mills. ¹	In woolen and car- pet mills. ¹	In cotton small wares and cord- age and twine factories.	Total.	In cotton mills.	In hosiery and knit goods mills. ¹	In worsted mills. ¹	In woolen and car- pet mills. ¹	In cotton small wares and cord- age and twine factories.	
United States....	23,687,495	23,155,613	303,245	52,745	57,668	118,224	19,472,232	19,008,352	206,698	95,356	59,460	102,366	14,384,180
New England states....	14,202,971	13,911,241	164,909	52,745	14,024	60,052	13,171,377	12,850,987	137,376	95,356	27,344	60,314	10,934,297
Maine.....	897,422	891,246	.....	.....	3,064	3,112	848,377	841,521	.....	.....	3,584	3,272	892,762
New Hampshire....	1,304,476	1,301,281	3,195	.....	.....	.....	1,249,875	1,243,555	6,320	.....	.....	.....	1,198,643
Vermont.....	108,028	108,028	.....	.....	.....	.....	100,028	100,028	.....	.....	.....	.....	71,591
Massachusetts.....	8,597,328	8,411,249	117,014	52,745	10,960	5,360	7,932,883	7,784,687	91,356	50,080	3,760	3,000	5,872,852
Rhode Island.....	2,086,802	2,049,522	.....	.....	.....	37,280	1,976,198	1,880,622	.....	45,276	10,000	40,300	1,959,294
Connecticut.....	1,208,915	1,149,915	44,700	.....	.....	14,300	1,064,016	1,000,574	39,700	.....	10,000	13,742	939,155
Middle states.....	1,656,553	1,548,719	83,028	.....	19,916	4,890	1,721,347	1,647,251	52,712	.....	20,184	1,200	1,716,019
New York.....	793,314	704,634	77,608	.....	9,952	1,120	764,492	720,268	38,404	.....	5,820	.....	629,324
New Jersey.....	436,764	436,764	.....	.....	.....	.....	431,730	431,730	.....	.....	.....	.....	374,442
Pennsylvania.....	282,467	266,097	5,420	.....	7,180	3,770	336,509	306,637	14,308	.....	14,364	1,200	496,551
Delaware.....	7,552	7,552	.....	.....	.....	.....	34,552	34,552	.....	.....	.....	.....	53,916
Maryland.....	136,456	133,672	.....	.....	2,784	.....	154,064	154,064	.....	.....	.....	.....	161,786
Southern states.....	7,618,030	7,508,749	44,096	.....	17,228	47,957	4,354,034	4,298,188	16,610	.....	5,000	34,236	1,563,598
Virginia.....	201,090	193,062	3,996	.....	.....	4,032	132,707	126,827	5,880	.....	.....	.....	94,294
West Virginia.....	800	.....	.....	.....	800	.....	.....	.....	.....	.....	.....	.....	344,606
North Carolina.....	1,916,339	1,880,950	13,264	.....	1,000	21,125	1,137,328	1,133,432	2,860	.....	1,036	.....	332,784
South Carolina.....	2,876,796	2,864,092	11,904	.....	.....	800	1,436,969	1,431,349	5,620	.....	.....	.....	445,452
Georgia.....	1,331,765	1,316,573	6,560	.....	5,000	3,632	832,321	815,545	.....	.....	.....	16,776	42,942
Kentucky.....	81,392	76,192	.....	.....	.....	5,200	66,633	66,633	.....	.....	.....	.....	98,324
Tennessee.....	164,203	153,375	.....	.....	10,300	528	130,296	123,896	.....	.....	5,000	1,400	8,640
Alabama.....	772,727	758,087	5,372	.....	128	9,140	419,968	411,328	.....	.....	.....	3,024	5,780
Mississippi.....	128,852	125,352	.....	.....	.....	3,500	78,146	75,122	.....	.....	.....	.....	47,050
Arkansas.....	13,844	13,844	.....	.....	.....	.....	13,060	9,700	.....	.....	.....	.....	16,000
Louisiana.....	62,052	59,052	3,000	.....	.....	.....	57,850	55,600	2,250	.....	.....	.....	.....
Texas.....	68,170	68,170	.....	.....	.....	.....	48,756	48,756	.....	.....	.....	.....	.....
Western states.....	209,941	186,904	11,212	.....	6,500	5,325	225,474	211,926	.....	.....	6,932	6,616	170,266
Ohio.....	.....	.....	.....	.....	.....	.....	4,600	.....	.....	.....	.....	4,600	16,580
Indiana.....	129,292	119,252	300	.....	6,500	3,240	108,988	102,488	.....	.....	6,500	.....	80,604
Illinois.....	32,000	32,000	.....	.....	.....	.....	31,488	31,488	.....	.....	.....	.....	21,800
Wisconsin.....	13,136	13,136	.....	.....	.....	.....	21,496	21,496	.....	.....	.....	.....	32,592
Michigan.....	10,912	.....	10,912	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Iowa.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	6,000
Missouri.....	14,101	12,016	.....	.....	.....	2,085	13,654	13,654	.....	.....	.....	.....	6,690
Nebraska.....	.....	.....	.....	.....	.....	.....	15,488	15,488	.....	.....	.....	.....	.....
Utah.....	.....	.....	.....	.....	.....	.....	432	.....	.....	.....	432	.....	.....
Colorado.....	.....	.....	.....	.....	.....	.....	17,312	17,312	.....	.....	.....	.....	.....
Kansas.....	.....	.....	.....	.....	.....	.....	2,016	.....	.....	.....	.....	2,016	.....
California.....	10,500	10,500	.....	.....	.....	.....	10,000	10,000	.....	.....	.....	.....	6,000

¹ Includes doubling and twisting spindles.

The numerical increase of spindles in all mills from 1900 to 1905 was 4,215,263, or 21.6 per cent. From 1890 to 1900 the increase was from 14,384,180 to 19,472,232—numerically 5,088,052, or 35.4 per cent. The increase to 23,687,495 now reported is about five-sixths numerically of that in the preceding decade, and the percentage rate is much higher, upon an enlarged basis.

No significance attaches to the changes in the number of spindles in any of the mills except cotton mills proper. The entire increase for other than those in cotton mills between 1905 and 1900 is only 68,002, and may easily be accounted for by changes in the charac-

ter of the business of a few concerns without any important actual increase or diminution of spindles.

Apart from the single fact that the cotton spindles in the United States operated in 1905 exceeded 23,500,000, the interest in this matter is confined exclusively to cotton mills proper, and all the discussion hereafter relates to them alone, unless it is expressly stated to the contrary. The numerical increase is 4,147,261, as compared with 4,820,249 in the ten years from 1890 to 1900, and is 21.8 per cent, as compared with 34 per cent for the full period of ten years preceding. In New England the increase from 12,850,987 spindles in 1900 to 13,911,241 in 1905 is

numerically 1,060,254, or 8.3 per cent, as compared with 18.6 per cent in the former period. In the Middle and Western states the changes are small, but in the direction of lower numbers; yet the industry is so little developed in those parts of the country that no attention need be given to it. In the South the increase is from 4,298,188 spindles in 1900 to 7,508,749 in 1905—numerically 3,210,561, and a percentage of almost exactly 75. The increase exceeds by 466,373 the entire increase between 1890 and 1900, although, owing to the higher number on which the percentage is reckoned, the rate falls from 176.6 per cent to 75 per cent. Among the states, Massachusetts is still the leader, as it has always been, and has, with its 8,411,249 spindles, more than the aggregate of the next four states; but in 1900 its spindles outnumbered those of the next six states. The second place, so long held by Rhode Island, has now been taken by South Carolina. North Carolina is fourth and Georgia is fifth, both having pushed New Hampshire down the line to the sixth place. The changes that have occurred in the relative

rank of the leading states in five years, as shown in the following statement, are remarkable:

RANK.	1905	RANK.	1900
1	Massachusetts.	1	Massachusetts.
2	South Carolina.	2	Rhode Island.
3	Rhode Island.	3	South Carolina.
4	North Carolina.	4	New Hampshire.
5	Georgia.	5	North Carolina.
6	New Hampshire.	6	Connecticut.
7	Connecticut.	7	Maine.
8	Maine.	8	Georgia.

The unusual position of Pennsylvania with respect to its spindle capacity, and the importance of its industry as a whole, was mentioned in former reports. The anomaly is still further emphasized by the current census. It now reports only 266,097 spindles, only 1.1 per cent of those in the United States, but the value of its product is nearly 5.5 per cent of the total.

Table 16 shows the number of mule and frame spindles in cotton mills, arranged by geographic divisions, in 1890, 1900, and 1905, with the total in 1880, when no separation of the two classes was made.

TABLE 16.—NUMBER OF SPINDLES IN COTTON MILLS,¹ BY STATES AND GEOGRAPHIC DIVISIONS: 1880 TO 1905.

STATE.	1905			1900			1890			1880 (total).
	Total.	Mule.	Frame.	Total.	Mule.	Frame.	Total.	Mule.	Frame.	
United States.....	23,155,613	5,221,857	17,933,756	19,008,352	5,563,480	13,444,872	14,188,103	5,363,486	8,824,617	10,653,435
New England states.....	13,911,241	4,147,290	9,763,951	12,850,987	4,477,199	8,373,788	10,836,155	4,391,895	6,444,260	8,632,087
Maine.....	891,246	223,724	667,522	841,521	256,948	584,573	885,762	344,697	541,065	695,924
New Hampshire.....	1,301,281	269,076	1,032,205	1,243,555	287,165	956,390	1,195,643	364,234	831,409	944,053
Vermont.....	108,028	27,716	80,312	100,028	43,316	56,712	71,591	42,735	28,856	55,081
Massachusetts.....	8,411,249	2,329,060	6,082,189	7,784,687	2,556,316	5,228,371	5,824,518	2,430,719	3,393,799	4,236,084
Rhode Island.....	2,049,522	850,238	1,199,284	1,880,622	940,328	940,294	1,924,486	811,869	1,112,617	1,764,569
Connecticut.....	1,149,915	447,476	702,439	1,000,574	393,126	607,448	934,155	397,641	536,514	936,376
Middle states.....	1,548,719	845,647	703,072	1,647,251	858,675	788,576	1,633,722	822,613	811,109	1,391,164
New York.....	704,634	376,502	328,132	720,268	367,136	353,132	606,796	334,210	272,586	561,658
New Jersey.....	436,764	348,804	87,960	431,730	367,092	64,638	374,442	304,490	69,962	232,221
Pennsylvania.....	266,097	120,341	145,756	306,637	124,447	182,190	439,638	175,657	263,951	425,391
Delaware.....	7,552	.....	7,552	34,552	.....	34,552	53,916	2,880	51,036	46,188
Maryland.....	133,672	.....	133,672	154,064	.....	154,064	158,930	5,356	153,574	125,706
Southern states.....	7,508,749	194,852	7,313,897	4,298,188	180,534	4,117,654	1,554,000	108,474	1,445,526	* 542,048
Virginia.....	193,062	3,088	189,974	126,827	2,325	124,502	94,294	13,198	81,096	44,340
North Carolina.....	1,880,950	66,760	1,814,190	1,133,432	35,352	1,098,080	337,786	30,920	306,866	92,385
South Carolina.....	2,864,092	15,112	2,848,980	1,431,349	10,752	1,420,597	332,784	4,000	328,784	82,334
Georgia.....	1,316,573	69,272	1,247,301	815,545	84,926	730,619	445,452	20,524	424,928	198,656
Kentucky.....	76,192	21,120	55,072	66,633	18,399	48,234	42,942	8,784	34,158	9,022
Tennessee.....	153,375	10,000	143,375	123,896	20,780	103,116	97,524	21,588	75,936	35,736
Alabama.....	758,087	7,000	751,087	411,328	8,000	403,328	79,234	9,460	69,774	49,432
Mississippi.....	125,352	.....	125,352	75,122	.....	75,122	57,004	.....	57,004	18,568
Arkansas.....	13,844	.....	13,844	9,700	.....	9,700	5,780	.....	5,780	.....
Louisiana.....	59,052	2,500	56,552	55,600	.....	55,600	46,200	.....	46,200	.....
Texas.....	68,170	.....	68,170	48,756	.....	48,756	15,000	.....	15,000	.....
Western states.....	186,904	34,068	152,836	211,926	47,072	164,854	164,226	40,504	123,722	* 88,136
Ohio.....	.....	.....	.....	.....	.....	.....	16,560	8,152	8,408	13,328
Indiana.....	119,252	18,068	101,184	102,488	16,320	86,168	74,604	16,320	58,284	33,396
Illinois.....	32,000	16,000	16,000	31,488	.....	15,488	21,800	8,000	13,800	.....
Wisconsin.....	13,136	.....	13,136	21,496	2,816	18,680	32,592	5,632	26,960	.....
Iowa.....	.....	.....	.....	.....	.....	.....	6,000	.....	6,000	.....
Missouri.....	12,016	.....	12,016	13,654	.....	13,654	6,670	2,400	4,270	19,312
Nebraska.....	.....	.....	.....	15,488	6,272	9,216	.....	.....	.....	.....
Colorado.....	.....	.....	.....	17,312	5,664	11,648	.....	.....	.....	.....
California.....	10,500	.....	10,500	10,000	.....	10,000	6,000	.....	6,000	.....

¹ Includes cotton small wares in 1890 and 1880.

² Includes in 1880, 11,575 spindles reported by states other than those named.

³ Includes in 1880, 22,100 spindles reported by states other than those named.

The tendency, more than once noted, to discontinue the use of mules and to employ frame spindles instead is shown most clearly in the above table. Between 1890 and 1900 there was a small increase in the number of mule spindles—about 200,000—which was less than 4 per cent of the total number. The decrease in the last five years amounts to 341,623. On the other hand, there has been, as has been remarked already, a very large increase in the number of frame spindles. Nearly four-fifths of all the mules in cotton mills are in those in the New England states, and most of the others are in New York and New Jersey. Yet even in most of these states there has been a decrease in number. Connecticut and New York are the only states which show an increase. There are some qualities of yarn which can not be made successfully by ring spinning. For these there will always be a demand for mules, at least until the difficulties heretofore experienced can be overcome. But there are reasons, not unconnected with the labor problem, which render manufacturers desirous of using frames rather than mules wherever it is practicable to do so.

There is one feature of the statistics relating to spindles which is not revealed by any table based upon the inquiries addressed to manufacturers. As has

already been remarked, it is necessary constantly to renew spindles, or at least to replace those in use by others of higher speed and greater efficiency. A mill which this year may report 100,000 spindles is the same, and yet not the same, mill which reported 100,000 spindles in 1900. One-half, or at least a large proportion, of its spindles may have been discarded and replaced by other and better ones. It is not only interesting, it is important, to know how fast and to what extent the replacement of machinery takes place.

During the five years 1900 to 1904, both years inclusive, the number of frame spindles sold by all manufacturers and placed in all mills, old and new, North and South, was 7,772,444. This number compared with 6,000,193 sold from 1880 to 1889, and with 8,901,408 in the decade 1890 to 1899. In other words, the new spindles installed in the last five years were almost seven-eighths as many as those installed in the ten years preceding. As we have seen, the total addition to the spindle capacity of the country was a little more than 4,000,000. Table 17, which is a continuation of one published in the report on the census of 1900, gives the useful details for each year from 1890 to 1904, with the total for the two census periods.

TABLE 17.—NUMBER OF FRAME SPINDLES SOLD: JANUARY 1, 1890, TO JANUARY 1, 1905.

YEAR.	Aggregate.	NORTHERN STATES.				SOUTHERN STATES.			
		Total.	New frames.		Old frames.	Total.	New frames.		Old frames.
			To new mills.	To old mills.			To new mills.	To old mills.	
Total, 1900 to 1904.....	7,772,444	3,346,815	117,298	2,457,646	771,871	4,425,629	2,199,112	2,005,468	221,049
1904.....	1,117,699	325,349	27,360	224,814	73,175	792,350	181,015	584,488	26,847
1903.....	1,682,798	794,818	40,294	642,527	111,997	887,980	402,059	453,870	32,051
1902.....	1,423,626	689,832	19,040	509,264	161,528	733,794	440,171	185,724	107,899
1901.....	1,675,528	574,205	5,600	360,732	201,873	1,101,323	717,537	354,482	29,304
1900.....	1,872,793	962,611	25,004	714,309	223,298	910,182	458,330	426,904	24,948
Total, 1890 to 1899.....	8,901,408	5,617,524	354,764	3,520,640	1,742,120	3,283,884	1,467,624	1,485,459	330,801
1899.....	1,140,378	503,927	2,384	354,444	147,099	636,451	374,759	210,892	50,800
1898.....	730,312	339,226	4,480	231,063	103,683	391,086	205,491	150,117	35,478
1897.....	651,427	278,439	11,424	154,160	112,855	372,988	206,468	121,252	45,268
1896.....	1,518,099	832,027	128,192	512,089	191,746	686,072	309,060	315,976	61,036
1895.....	958,426	609,075	45,120	464,056	159,899	289,351	113,560	145,691	30,100
1894.....	552,707	377,423	18,812	241,397	117,214	175,344	73,048	84,040	18,256
1893.....	1,042,268	823,008	54,656	493,435	274,917	219,260	48,080	135,524	35,656
1892.....	866,616	691,510	36,440	415,483	239,587	175,106	60,552	97,282	17,272
1891.....	656,308	499,999	14,656	298,288	187,055	156,307	18,697	116,425	21,185
1890.....	784,809	602,890	38,600	356,225	208,065	181,919	57,909	108,260	15,750

It is not to be supposed that the exact facts can be obtained from Tables 16 and 17, or that it is necessary to reconcile the figures they present; for many of the new frames in old mills represent an enlargement of the plant of those mills, and others are a substitution of new spindles for old without any increase of capacity. It is certain that a large proportion of the new frames in old mills in the South do signify an increased number of spindles in those mills, and that the number representing a substitution of new spindles for old is not important. The cotton factories of the South are not yet, for the most part, old enough to require renovation of machinery. On the other hand, the

increase in the number of frame spindles in New England (the other divisions of the North show a decrease) was only 1,390,163, and inasmuch as the number of spindles sold in new frames to old mills, and those placed in old frames, aggregated more than 3,200,000, it is fair to assume that many more than one-half, say, 1,800,000, were substituted for obsolete spindles. Upon that assumption more than one-fifth of the frame spindles in use in 1899 were thrown out in the ensuing five years.

Consumption of cotton per spindle.—At the census of 1905 the cotton mills of the country, having 23,155,613 spindles, consumed 1,873,074,716 pounds of cotton of

all kinds. The average consumption of cotton per spindle was therefore 80.89 pounds. This compares with an average of 95.43 pounds per spindle, as reported at the census of 1900. The full comparison by geographic divisions at the last four enumerations will be seen in the following tabular statement:

Cotton consumed per spindle: 1880 to 1905.¹

DIVISION.	1905 (pounds).	1900 (pounds).	1890 (pounds).	1880 (pounds).
United States.....	80.89	95.43	78.79	70.43
New England states.....	60.63	72.64	65.95	62.72
Middle states.....	78.71	88.24	78.46	78.58
Southern states.....	118.48	164.65	161.41	155.94
Western states.....	96.84	111.07	147.55	171.55

¹ Includes cotton small wares in 1890 and 1880.

It must be borne in mind that, as previously stated, the census figures on quantity of cotton consumed approximately represent gross weight, including "tare," which should be considered in making close calculations.

The apparent indication from these figures is that the spindles in 1905 were less efficient, in that they made a smaller average amount of yarn in weight than the spindles in 1900, but the reverse is the truth. The efficiency of spindles is measured by the length rather than by the weight of their product, and even that is to a certain extent misleading, because a spindle spinning coarse yarn produces a greater length of yarn than one spinning finer counts. So far as the report for New England is concerned the large decrease in the weight of cotton consumed per spindle is only partially due to finer spinning, which is the general deduction to be drawn from the statement. The Fall River strike is answerable for not a little of the drop. The spindles were there, but they were consuming cotton only a part of the year. But the very large decrease in the average consumption by southern spindles is undoubtedly the result, almost wholly, of the change in the class of goods produced in the South. In the early days of southern manufacturing the goods produced were almost exclusively of the coarsest, and were made for local use by the poorest of the whites and by negroes. Even when the manufacturing impulse set in, no attempt was made to produce cloth the yarn of which could be classed as medium. As soon as the local demand was fully met, and when there came an ambition to compete with northern manufacturers, the machinery was arranged to spin finer yarns, and ultimately a large part of the cloth production of that part of the country was made for export—goods which are strictly medium in their composition. As has been seen already, there is not yet a large amount of yarn produced in the South that can be put under the head of "fine," but there has been a great increase in the production of that between Nos. 21 to 40. Deductions from the above tabular statement, although confirmatory of the facts

otherwise presented, must be taken with much caution. They are impaired in value by the fact that a large number of spindles in New England were idle during a part of the year, and the figures can not be taken as conclusive either of the efficiency of spindles or of the comparative fineness of yarn, since the average consumption of cotton depends upon a consideration of both facts.

As was remarked in the report on the census of 1900, Table 18, which is a continuation of one first presented in the report on the Eleventh Census, is valuable rather in detail and for purposes of comparison than in consequence of any general deductions that may legitimately be drawn from it.

TABLE 18.—Cotton goods¹—number of spindles to each wage-earner and the labor cost per spindle, by states and geographic divisions: 1880 to 1905.

STATE.	Census.	WAGE-EARNERS AND WAGES.		Number of spindles.	Num- ber of spind- les to each wage- earner.	Labor cost per spindle.
		Average number.	Wages.			
United States..	1905	310,458	\$94,377,696	23,155,613	74.59	\$4.08
	1900	297,929	85,126,310	19,008,352	63.80	4.48
	1890	218,876	66,024,538	14,188,103	64.82	4.65
	1880	172,544	42,040,510	10,653,435	61.74	3.95
New England states.	1905	155,981	56,530,767	13,911,241	89.19	4.06
	1900	162,294	55,367,541	12,850,987	79.18	4.31
	1890	147,359	47,832,943	10,836,155	73.54	4.41
	1880	125,779	32,170,861	8,632,087	68.63	3.73
Maine.....	1905	12,382	4,036,858	891,246	71.98	4.53
	1900	13,723	4,330,297	841,521	61.32	5.15
	1890	13,912	4,213,523	885,762	63.67	4.76
	1880	11,759	2,936,640	695,924	59.18	4.22
New Hampshire.	1905	19,731	7,372,808	1,301,281	65.95	5.67
	1900	20,454	6,759,422	1,243,555	60.80	5.44
	1890	19,383	6,242,204	1,195,643	61.69	5.22
	1880	16,395	4,290,960	944,053	57.58	4.55
Vermont.....	1905	851	241,400	108,028	126.94	2.23
	1900	1,015	259,758	100,028	98.55	2.60
	1890	724	204,538	71,591	98.88	2.86
	1880	721	161,748	55,081	76.40	2.94
Massachusetts...	1905	88,033	32,352,325	8,411,249	95.55	3.85
	1900	92,085	32,327,443	7,784,687	84.54	4.15
	1890	75,544	25,118,365	5,824,518	77.10	4.31
	1880	61,246	15,828,571	4,236,084	69.17	3.74
Rhode Island....	1905	21,917	7,890,160	2,049,522	93.51	3.85
	1900	21,823	7,297,119	1,880,622	86.18	3.88
	1890	24,576	7,814,767	1,924,486	78.31	4.06
	1880	21,174	5,320,303	1,764,569	83.34	3.02
Connecticut.....	1905	13,067	4,637,216	1,149,915	88.00	4.03
	1900	13,194	4,393,502	1,000,574	75.84	4.39
	1890	13,220	4,239,546	934,155	70.66	4.54
	1880	14,484	3,632,639	936,376	64.65	3.88
Middle states.....	1905	31,871	11,459,026	1,548,719	48.59	7.40
	1900	34,843	11,596,710	1,647,251	47.28	6.92
	1890	31,841	10,184,589	1,633,722	51.31	6.23
	1880	28,118	6,613,260	1,391,164	49.48	4.75
New York.....	1905	8,589	3,000,193	704,634	82.04	4.26
	1900	8,659	2,582,394	720,268	83.18	3.59
	1890	8,316	2,448,031	606,796	72.97	4.03
	1880	9,227	1,994,755	561,658	60.87	3.55
New Jersey.....	1905	5,362	2,021,841	436,764	81.46	4.63
	1900	5,518	1,887,119	431,730	78.24	4.37
	1890	5,632	1,984,659	374,442	66.48	5.30
	1880	4,179	1,156,961	232,221	55.57	4.98
Pennsylvania....	1905	13,789	5,455,858	266,097	19.30	20.50
	1900	15,567	5,602,339	306,637	19.70	18.27
	1890	12,666	4,388,017	439,638	34.71	9.98
	1880	9,879	2,502,688	425,391	43.06	5.88
Delaware ²	1900	372	138,844	34,552	92.88	4.02
	1890	971	308,346	53,916	55.53	5.72
	1880	791	192,727	46,188	58.39	4.17
Maryland..... ³	1905	4,131	981,134	141,224	34.19	6.95
	1900	4,727	1,186,014	154,064	32.59	7.70
	1890	4,256	1,055,536	158,930	37.34	6.64
	1880	4,042	766,129	125,706	31.10	6.09

¹ Includes cotton small wares in 1890 and 1880.

² Combined with Maryland in 1905.

³ Includes Delaware.

TABLE 18.—Cotton goods¹—number of spindles to each wage-earner and the labor cost per spindle, by states and geographic divisions: 1880 to 1905—Continued.

STATE.	Census.	WAGE-EARNERS AND WAGES.		Number of spindles.	Number of spindles to each wage-earner.	Labor cost per spindle.
		Average number.	Wages.			
Southern states.....	1905	120, 110	\$25, 649, 575	7, 508, 749	62.52	\$3. 42
	1900	97, 494	17, 501, 648	4, 298, 188	44.09	4.07
	1890	36, 415	7, 116, 865	1, 554, 000	42.67	4.58
	1880	16, 317	2, 750, 986	542, 048	33.22	5.08
Virginia.....	1905	3, 456	883, 908	193, 062	55.86	4.58
	1900	2, 931	668, 556	126, 827	43.27	5.27
	1890	1, 990	373, 993	94, 294	47.38	3.97
	1880	1, 085	169, 789	44, 340	40.87	3.83
North Carolina..	1905	36, 356	7, 503, 512	1, 880, 950	51.74	3.99
	1900	30, 273	5, 127, 087	1, 133, 432	37.44	4.52
	1890	8, 515	1, 475, 932	337, 786	39.67	4.37
	1880	3, 232	439, 659	92, 385	28.58	4.76
South Carolina...	1905	37, 271	7, 701, 689	2, 864, 092	76.85	2.69
	1900	30, 201	5, 066, 840	1, 431, 349	47.39	3.54
	1890	8, 071	1, 510, 494	332, 784	41.23	4.54
	1880	2, 018	380, 844	82, 334	40.80	4.63
Georgia.....	1905	24, 130	5, 313, 392	1, 316, 573	54.56	4.04
	1900	18, 283	3, 566, 951	815, 545	44.61	4.37
	1890	10, 314	2, 167, 036	445, 452	43.19	4.86
	1880	6, 215	1, 135, 184	198, 656	31.96	5.71
Kentucky.....	1905	1, 031	243, 215	76, 192	73.90	3.19
	1900	1, 351	280, 407	66, 633	49.32	4.21
	1890	818	170, 573	42, 942	52.50	3.97
	1880	348	63, 850	9, 022	25.93	7.08
Tennessee.....	1905	2, 294	531, 406	153, 375	66.86	3.46
	1900	2, 108	422, 935	123, 896	58.77	3.41
	1890	2, 124	444, 573	97, 524	45.92	4.56
	1880	1, 015	161, 071	35, 736	35.21	4.51
Alabama.....	1905	11, 480	2, 457, 928	758, 087	66.04	3.24
	1900	8, 332	1, 482, 226	411, 328	49.37	3.60
	1890	2, 088	402, 908	79, 234	37.95	5.09
	1880	1, 448	239, 998	49, 432	34.14	4.86
Mississippi.....	1905	2, 161	518, 448	125, 352	58.01	4.14
	1900	1, 675	339, 546	75, 122	44.85	4.52
	1890	1, 154	263, 997	57, 004	49.40	4.63
	1880	695	133, 214	18, 568	26.72	7.17
Texas ²	1905	993	269, 737	68, 170	68.65	3.96
	1900	984	253, 630	48, 756	49.55	5.20
All other Southern states.....	³ 1905	938	226, 340	72, 896	77.71	3.10
	⁴ 1900	1, 356	293, 470	65, 300	48.16	4.49
	⁵ 1890	1, 341	307, 359	60, 980	49.95	4.59
	⁶ 1880	261	27, 377	11, 575	44.35	2.37
Western states.....	1905	2, 496	738, 328	186, 904	74.88	3.95
	1900	3, 298	860, 411	211, 926	64.26	4.06
	1890	3, 261	890, 141	164, 226	50.36	5.42
	1880	2, 330	505, 403	88, 136	37.83	5.73
Ohio.....	1905	107	27, 185	.....	.....	.....
	1900	106	27, 861	.....	.....	.....
	1890	554	161, 613	16, 560	29.89	9.76
	1880	481	104, 500	13, 328	27.71	7.84
Indiana.....	1905	1, 174	302, 035	119, 252	101.58	2.53
	1900	1, 421	323, 949	102, 488	72.12	3.16
	1890	1, 309	310, 342	74, 604	56.99	4.16
	1880	708	162, 829	33, 396	47.17	4.88
Illinois ⁷	1890	430	123, 986	21, 800	50.70	5.69
Wisconsin ⁸	1905	161	43, 760	13, 136	81.59	3.33
	1900	347	80, 567	21, 496	61.95	3.75
	1890	490	131, 170	32, 592	66.51	4.02
Missouri ⁹	1880	508	97, 680	19, 312	38.02	5.06
All other Western states.....	¹⁰ 1905	1, 054	365, 348	54, 516	51.72	6.70
	¹¹ 1900	1, 424	428, 034	87, 942	61.76	4.87
	¹² 1890	478	163, 030	18, 670	39.06	8.73
	¹³ 1880	633	140, 394	22, 100	34.91	6.35

¹ Includes cotton small wares in 1890 and 1880.

² Included in "all other Southern states" in 1890 and 1880.

³ Includes states as follows: Arkansas and Louisiana.

⁴ Includes states as follows: Arkansas, Louisiana, and West Virginia.

⁵ Includes states as follows: Arkansas, Louisiana, and Texas.

⁶ Includes states as follows: Arkansas, Florida, Louisiana, and Texas.

⁷ Included in "all other Western states" in 1905, 1900, and 1880.

⁸ Included in "all other Western states" in 1890.

⁹ Included in "all other Western states" in 1905, 1900, and 1890.

¹⁰ Includes states as follows: California, Illinois, and Missouri.

¹¹ Includes states as follows: California, Colorado, Illinois, Missouri, and Nebraska.

¹² Includes states as follows: California, Iowa, and Missouri.

¹³ Includes states as follows: Illinois, Michigan, Minnesota, Utah, and Wisconsin.

In making comparisons some interesting facts appear. Once more we have to note the effect upon statistics of the labor disturbance in New England. In ascertaining the number of spindles to each wage-earner the average number of wage-earners during the year is taken as a divisor, and that average is less than in a year of normal production. So in ascertaining the labor cost per spindle the total amount paid as wages is the dividend, and that also is reduced below the normal amount. But the figures for the Southern states, comparing years of full occupation and prosperity, do teach something. A general increase from 44.09 spindles to a single operative in 1900 to 62.52 spindles in 1905 indicates a remarkable increase in the efficiency of the labor employed. The number is still much below the New England average of 79.18 spindles in 1900, and inasmuch as fine spinning requires more labor for each spindle, the difference would be larger if that consideration were taken into account. Yet when it is borne in mind that southern cotton manufacturing was begun and has largely continued to be performed by labor drawn from the region of the mills, that it was in no sense skilled labor at the outset, and has not been recruited to any considerable extent from the home and foreign sources of expert help, the result is truly marvelous. The figures showing the labor cost per spindle tell the same story in a different way. In the South as a whole the amount was only \$3.42 per spindle, as compared with \$4.07 in 1900, indicating a considerably higher efficiency of labor. But it is also to be compared with a labor cost of \$4.31 in New England in 1900, and with \$4.06 in 1905, when the amount was reduced by exceptional circumstances having no relation to the efficiency of labor. Making due allowance for the higher cost of fine spinning, there is still a large margin of economy in favor of the South. The figures for South Carolina are fairly startling. They show a labor cost of no more than \$2.69 per spindle. It is of course impossible to estimate just how much less the cost in Massachusetts—reported at \$4.15 in the normal year 1900—would have been if the spinning had been of the average fineness of South Carolina, but no reasonable allowance on that score would have brought down the labor cost to anywhere near the amount reported for South Carolina.

Looms.—Inasmuch as the character of American cotton manufacturing does not change perceptibly, it is to be expected that the number of looms will increase in nearly the same ratio as the number of spindles. The expectation is realized by Table 19, which indicates an increase of almost exactly 20 per cent in five years, as compared with an increase of nearly 22 per cent in spindles.

TABLE 19.—COTTON GOODS¹—NUMBER AND CLASSIFICATION OF LOOMS, BY GEOGRAPHIC DIVISIONS: 1890 TO 1905.

DIVISION.	Census.	NUMBER OF LOOMS—								
		Total.	On plain cloths.				On twills, including sateens.	On fancy weaves.	On tapes and other narrow goods.	On bags and other special fabrics.
			Less than 28 inches wide.	28 to 32 inches wide.	32 to 36 inches wide (inclusive).	More than 36 inches wide.				
United States.....	1905	540,910	31,901	115,966	94,649	160,231	68,038	62,214	1,439	6,472
	1900	450,682	35,601	98,995	79,349	126,082	58,839	45,686	1,709	4,421
	1890	324,866	23,048	91,862	55,356	71,591	53,726	23,233	(²)	5,450
New England states.....	1905	324,058	11,228	81,742	40,343	89,978	55,093	41,443	711	3,520
	1900	298,885	16,765	77,326	37,722	84,916	47,030	31,635	1,586	1,855
	1890	250,116	12,609	72,928	35,063	62,508	46,346	18,900	.....	1,762
Middle states.....	1905	31,748	5,722	1,002	2,568	9,186	1,915	10,007	64	1,284
	1900	36,134	6,442	3,023	3,501	8,035	3,403	10,031	123	1,576
	1890	35,074	5,196	10,601	3,628	5,708	4,930	2,358	.....	2,653
Southern states.....	1905	179,752	14,519	33,167	48,779	59,730	11,030	10,695	270	1,562
	1900	110,010	12,374	17,930	34,446	32,323	8,356	3,856	.....	725
	1890	36,236	5,803	8,309	13,956	2,875	2,442	1,975	.....	906
Western states.....	1905	5,352	432	55	2,959	1,337	.....	69	394	106
	1900	5,653	20	716	3,680	808	.....	164	.....	265
	1890	3,410	40	24	2,709	500	8	.....	.....	129

¹ Includes cotton small wares in 1890.

² Included with bags and other special fabrics in 1890.

The numerical increase of looms is 90,228. Between 1890 and 1900 the increase was 125,816. The rate has therefore been much larger in the last five years than in the preceding decade. By geographic divisions the increase from 1900 to 1905 was 25,173 in New England and 69,742 in the South. There was a decrease of 4,386 in the Middle states and of 301 in the Western states. The classification of looms shows that the increase is, as usual, largest in the case of those making plain goods of standard width. There is a decrease in the number weaving narrow goods—those less than 28 inches in width—although there is a small increase in southern looms of that character. The largest increase of all is in the number weaving sheetings more than 36 inches in width. About 9,000 more than in 1900 are employed upon twills and sateens and 16,500 more are making fancy weaves. It

is interesting to note the large increase of looms making such goods in southern mills. In 1890 only 1,975 looms were reported in those mills; in 1900 the number had not quite doubled, being 3,856; but at present no less than 10,695 are reported, an increase of nearly 7,000 within the last five years, and the total is about one-sixth of the number for the whole country. The cotton manufacturing of Pennsylvania is chiefly weaving. In the whole country there are 43 spindles to one loom, but in Pennsylvania there are only 19 spindles to a loom. The present report shows a falling off of 1,732 looms in that state, or very nearly 11 per cent.

Classification of mills according to machinery.—Table 20 presents a classification of cotton mills, first shown at the census of 1900, according to the machinery employed.

TABLE 20.—COTTON GOODS—NUMBER AND CAPACITY OF SPINNING MILLS, WEAVING MILLS, AND MILLS WHICH DO BOTH SPINNING AND WEAVING, BY STATES AND GEOGRAPHIC DIVISIONS: 1905 AND 1900.

STATE.	Cen- sus.	Number of estab- lish- ments.	SPINNING AND WEAVING MILLS.			SPINNING MILLS.		WEAVING MILLS.		Number of estab- lish- ments having no spin- dles or looms for spinning or weav- ing.
			Number.	Capacity.		Number.	Capacity (number of spindles).	Number.	Capacity (number of looms).	
				Number of spindles.	Number of looms.					
United States.....	1905	1,077	580	19,171,542	522,301	295	3,984,071	169	18,609	23
	1900	973	502	15,882,095	432,959	274	3,126,257	168	17,723	29
New England states.....	1905	308	220	12,097,602	319,711	53	1,813,639	20	4,347	15
	1900	332	223	11,233,326	295,710	76	1,617,661	17	3,175	16
Maine.....	1905	15	13	886,914	24,050	1	4,332	1	139	.....
	1900	15	13	837,021	23,229	1	4,500	1	137	.....
New Hampshire.....	1905	25	21	1,284,289	36,115	3	16,992	.....	.....	1
	1900	23	20	1,235,907	35,123	3	7,648	.....	.....	.....
Vermont.....	1905	4	3	106,108	2,539	1	1,920	.....	.....	.....
	1900	5	3	81,576	2,099	2	18,452	.....	.....	.....
Massachusetts.....	1905	142	105	7,295,418	191,507	22	1,115,831	8	3,179	7
	1900	163	110	6,712,998	176,554	36	1,071,689	10	2,726	7

MANUFACTURES.

TABLE 20.—COTTON GOODS—NUMBER AND CAPACITY OF SPINNING MILLS, WEAVING MILLS, AND MILLS WHICH DO BOTH SPINNING AND WEAVING, BY STATES AND GEOGRAPHIC DIVISIONS: 1905 AND 1900—Continued.

STATE.	Cen- sus.	Number of estab- lish- ments.	SPINNING AND WEAVING MILLS.			SPINNING MILLS.		WEAVING MILLS.		Number of estab- lish- ments having no spin- dles or looms for spinning or weav- ing.
			Number.	Capacity.		Number.	Capacity (number of spindles).	Number.	Capacity (number of looms).	
				Number of spindles.	Number of looms.					
New England States—Continued.										
Rhode Island.....	1905	73	46	1,641,870	44,735	14	407,652	9	998	4
	1900	71	44	1,469,404	39,366	20	411,218	8	106	4
Connecticut.....	1905	49	32	883,003	20,765	12	266,912	2	31	8
	1900	55	33	896,420	19,339	14	104,154	3	206	5
Middle states.....	1905	204	32	893,934	18,664	29	654,785	137	13,084	6
	1900	225	46	1,072,154	23,724	29	575,097	138	12,410	12
New York.....	1905	30	9	573,522	11,857	7	131,112	12	607	2
	1900	34	14	626,040	14,110	7	94,228	10	435	3
New Jersey.....	1905	17	4	71,648	1,745	5	365,116	7	492	1
	1900	20	3	101,688	1,576	4	330,042	10	650	3
Pennsylvania.....	1905	144	11	107,540	2,665	17	158,557	113	11,418	3
	1900	154	17	168,810	4,791	17	137,827	114	11,024	6
Delaware.....	1905	1	1	7,552	238					
	1900	3	2	21,552	738	1	13,000			
Maryland.....	1905	12	7	133,672	2,159			5	567	
	1900	14	10	154,064	2,509			4	301	
Southern states.....	1905	550	329	5,995,214	179,043	212	1,513,535	8	709	1
	1900	400	222	3,366,439	108,044	168	931,749	10	1,966	
West Virginia ¹	1900	1						1	19	
Virginia.....	1905	10	3	158,140	5,429	6	34,922	1	35	
	1900	7	7	126,827	4,608					
North Carolina.....	1905	212	100	1,148,716	42,545	104	732,234	7	674	1
	1900	177	75	649,442	23,992	94	483,990	8	1,477	
South Carolina.....	1905	127	96	2,618,194	72,702	31	245,898			
	1900	80	57	1,304,181	42,193	22	127,168	1	470	
Georgia.....	1905	103	67	1,052,203	31,210	36	264,370			
	1900	67	42	652,611	19,393	25	162,934			
Kentucky.....	1905	4	1	47,072	1,292	3	29,120			
	1900	6	2	37,592	991	4	29,041			
Tennessee.....	1905	16	8	116,275	3,008	8	37,100			
	1900	17	9	97,558	2,995	8	26,338			
Alabama.....	1905	46	28	617,714	15,659	18	140,373			
	1900	31	18	325,560	8,549	13	85,768			
Mississippi.....	1905	14	12	113,544	3,472	2	11,808			
	1900	6	5	73,872	2,464	1	1,250			
Arkansas.....	1905	2	1	7,124	240	1	6,720			
	1900	2	2	9,700	257					
Louisiana.....	1905	3	2	55,752	1,600	1	3,300			
	1900	2	2	55,600	1,584					
Texas.....	1905	13	11	60,480	1,886	2	7,690			
	1900	4	3	33,496	1,018	1	15,260			
Western states.....	1905	15	9	184,792	4,883	1	2,112	4	469	1
	1900	16	11	210,176	5,481	1	1,750	3	172	1
Ohio.....	1905	3						2	400	1
	1900	3						2	158	1
Indiana.....	1905	5	5	119,252	3,165					
	1900	4	4	102,488	2,712					
Illinois.....	1905	2	1	32,000	748			1	19	
	1900	1	1	31,488	700					
Wisconsin.....	1905	3	1	11,024	314	1	2,112	1	50	
	1900	3	2	21,496	577			1	14	
Missouri.....	1905	1	1	12,016	356					
	1900	2	1	11,904	356	1	1,750			
Nebraska ¹	1900	1	1	15,488	416					
Colorado ¹	1900	1	1	17,312	480					
California.....	1905	1	1	10,500	300					
	1900	1	1	10,000	240					

¹No establishments reported in 1905.

This table brings into great prominence the fact that in this country the processes of spinning and weaving are almost universally performed in one and the same establishment; for, although more than one-fourth of the mills do no weaving and nearly one-sixth of them do not spin, the establishments of both classes are of small average capacity. The average number of spindles in spinning and weaving mills is 32,494, and 82.8 per cent of all the spindles is in them; whereas the spinning mills average but 13,505 spindles and contain only 17.2 per cent of the whole number. In weaving the preponderance of the spinning and weaving mills is still more marked, for they average 885 looms to an establishment and contain 96.6 per cent of the whole number; the weaving mills, on the other hand, average only 110 looms to an establishment and contain only 3.4 per cent. Almost three-fourths of the weaving mills are in the state of Pennsylvania, where the average number of looms to an establishment is 101.

As compared with the returns for 1900 the figures

for 1905 do not show a tendency toward specialization. There is, to be sure, an increase of 7.7 per cent in the number of spinning mills and of 27.4 per cent in the number of spindles. But the number of spinning and weaving factories has increased 17.5 per cent and their spindles have increased 20.7 per cent. Although the rate of increase of spindle capacity is somewhat smaller, the numerical increase of the spinning and weaving mills is over four times that of the spinning factories. In number and in loom capacity there has been hardly any change in the weaving mills during the past five years.

Table 21 is a detailed summary for cotton goods, by states and geographic divisions, for the census of 1905.

Table 22 is a detailed summary of materials and products for the United States, by geographic divisions, for the census of 1905. The kind, quantity, and value of materials and products can not be shown by states without disclosing the operations of individual establishments.

TABLE 21.—COTTON GOODS—DETAILED SUMMARY, BY STATES AND GEOGRAPHIC DIVISIONS: 1905.

STATE.	Number of establishments.	CAPITAL.				
		Total.	Land.	Buildings.	Machinery, tools, and implements.	Cash and sundries.
United States.....	1,077	\$605,100,164	\$26,351,753	\$115,361,238	\$245,766,621	\$217,620,552
New England states.....	308	304,259,792	14,741,640	55,416,774	106,648,675	127,452,703
Maine.....	15	21,642,675	1,258,925	3,278,433	7,926,805	9,178,512
New Hampshire.....	25	31,176,461	1,754,396	4,283,052	6,892,710	18,246,303
Vermont.....	4	3,155,177	131,701	538,838	882,350	1,602,288
Massachusetts.....	142	173,669,030	7,358,279	30,682,067	65,553,209	70,075,475
Rhode Island.....	73	43,527,584	2,496,184	9,535,283	14,509,864	16,986,253
Connecticut.....	49	31,088,865	1,742,155	7,099,101	10,883,737	11,363,872
Middle states ¹	203	64,176,280	3,079,815	13,397,601	23,819,587	23,879,277
New York.....	30	17,926,041	586,512	4,440,152	6,793,082	6,106,295
New Jersey.....	17	14,289,787	655,222	2,891,134	5,505,557	5,237,874
Pennsylvania.....	144	25,005,303	1,268,881	4,783,510	7,941,270	11,011,642
Maryland.....	12	6,955,149	569,200	1,282,805	3,579,678	1,523,466
Southern states ²	548	230,240,359	8,296,664	45,271,504	112,627,743	64,044,443
Virginia.....	10	7,067,428	1,639,886	1,178,119	2,871,691	1,377,732
North Carolina.....	212	57,413,418	1,790,581	10,701,840	28,484,819	16,436,178
South Carolina.....	127	82,337,429	1,998,956	15,766,566	41,950,436	22,621,471
Georgia.....	103	42,349,618	1,559,330	9,211,392	19,543,459	12,035,437
Alabama.....	46	24,758,049	670,901	4,996,740	12,048,586	7,041,822
Mississippi.....	14	4,520,133	117,524	1,043,673	2,242,071	1,116,865
Louisiana.....	3	1,795,794	134,018	380,750	820,226	460,800
Texas.....	13	2,729,235	91,452	498,781	1,405,847	733,155
Kentucky.....	4	2,155,883	42,574	416,302	915,150	781,857
Tennessee.....	16	5,113,372	251,442	1,077,341	2,345,458	1,439,131
Western states.....	15	5,936,583	219,500	1,199,965	2,402,741	2,114,377
Ohio.....	3	190,159	1,500	21,642	61,500	105,517
Indiana.....	5	2,276,816	78,000	503,233	1,124,167	571,416
Wisconsin.....	3	431,544	45,000	102,015	151,153	133,376
All other Western states ³	4	3,038,064	95,000	573,075	1,065,921	1,304,068
All other states ⁴	3	487,150	14,134	75,394	267,875	129,747

¹ Delaware included in "all other states."

² Arkansas included in "all other states."

³ Includes establishments distributed as follows: California, 1; Illinois, 2; Missouri, 1.

⁴ Includes establishments distributed as follows: Arkansas, 2; Delaware, 1.

TABLE 21.—COTTON GOODS—DETAILED SUMMARY, BY STATES AND GEOGRAPHIC DIVISIONS: 1905—Continued.

STATE.	Proprietors and firm members.	SALARIED OFFICIALS, CLERKS, ETC.									
		Aggregate number.	Aggregate salaries.	Officers of corporations.		General superintendents, managers, clerks, etc.					
				Number.	Salaries.	Total number.	Total salaries.	Men.		Women.	
								Number.	Salaries.	Number.	Salaries.
United States.....	367	6,738	\$9,911,767	1,432	\$3,711,429	5,306	\$6,200,338	4,871	\$5,992,287	435	\$208,051
New England states.....	98	2,908	4,950,079	415	1,727,978	2,493	3,222,101	2,286	3,119,864	207	102,237
Maine.....		200	341,724	37	145,118	163	196,606	160	195,087	3	1,519
New Hampshire.....	4	309	516,052	29	122,133	280	393,919	254	380,601	26	13,318
Vermont.....		27	38,113	4	9,700	23	28,413	22	28,113	1	300
Massachusetts.....	34	1,504	2,658,658	187	928,843	1,317	1,729,815	1,196	1,669,836	121	59,979
Rhode Island.....	43	526	891,360	101	356,499	425	534,861	394	519,990	31	14,871
Connecticut.....	17	342	504,172	57	165,685	285	338,487	260	326,237	25	12,250
Middle states.....	203	992	1,446,536	112	315,727	880	1,130,809	770	1,073,143	110	57,666
New York.....	12	194	281,068	32	93,742	162	187,326	148	181,015	14	6,311
New Jersey.....	4	135	239,051	15	48,905	120	190,146	111	186,084	9	4,062
Pennsylvania.....	182	563	833,587	58	158,100	505	675,487	420	628,892	85	46,595
Maryland.....	8	100	92,830	7	14,980	93	77,850	91	77,152	2	698
Southern states.....	55	2,732	3,360,232	883	1,620,224	1,849	1,740,008	1,742	1,695,176	107	44,832
Virginia.....		45	64,794	14	33,085	31	31,709	30	31,353	1	356
North Carolina.....	33	903	973,148	320	470,933	583	502,215	564	495,034	19	7,181
South Carolina.....	6	761	1,008,308	230	529,354	531	478,954	493	465,413	38	13,541
Georgia.....	13	558	725,947	183	344,106	375	381,841	343	364,878	32	16,963
Alabama.....	1	259	342,879	74	148,006	185	194,873	177	191,899	8	2,974
Mississippi.....		64	79,321	24	32,170	40	47,151	37	45,471	3	1,680
Louisiana.....		15	24,842	3	10,125	12	14,717	9	13,437	3	1,280
Texas.....		36	36,187	5	6,300	31	29,887	31	29,887		
Kentucky.....		25	25,249	7	12,500	18	12,749	16	11,992	2	757
Tennessee.....	2	66	79,557	23	33,645	43	45,912	42	45,812	1	100
Western states.....	8	94	141,577	20	41,900	74	99,677	63	96,361	11	3,316
Ohio.....	4	6	13,990	2	8,600	4	5,390	4	5,390		
Indiana.....		34	50,548	10	24,550	24	25,998	22	25,569	2	429
Wisconsin.....	4	20	31,956	2	150	18	31,806	17	31,520	1	286
All other Western states.....		34	45,083	6	8,600	28	36,483	20	33,882	8	2,601
All other states.....		12	13,343	2	5,600	10	7,743	10	7,743		

STATE.	WAGE-EARNERS, INCLUDING PIECEWORKERS, AND TOTAL WAGES.									
	Greatest number employed at any one time during the year.	Least number employed at any one time during the year.	Average number.	Total wages.	Men 16 years and over.		Women 16 years and over.		Children under 16 years.	
					Average number.	Wages.	Average number.	Wages.	Average number.	Wages.
United States.....	351,415	285,302	310,458	\$94,377,696	145,718	\$52,212,730	124,711	\$35,872,510	40,029	\$6,292,456
New England states.....	174,457	144,464	155,981	56,530,767	76,483	31,133,293	70,113	23,306,172	9,385	2,091,302
Maine.....	13,539	11,600	12,382	4,036,858	5,323	2,050,210	6,469	1,892,853	590	93,795
New Hampshire.....	21,281	17,621	19,731	7,372,808	9,697	4,049,098	9,625	3,246,693	409	77,017
Vermont.....	996	752	851	241,400	370	124,587	430	106,741	51	10,072
Massachusetts.....	100,982	82,106	88,033	32,352,325	43,393	17,787,769	39,054	13,261,481	5,586	1,303,075
Rhode Island.....	23,712	20,240	21,917	7,890,160	10,593	4,335,559	9,377	3,122,844	1,947	431,757
Connecticut.....	13,947	12,145	13,067	4,637,216	7,107	2,786,070	5,158	1,675,560	802	175,586
Middle states.....	35,216	28,592	31,733	11,412,000	13,852	6,378,377	15,116	4,562,193	2,765	471,430
New York.....	9,707	7,516	8,589	3,000,193	4,434	1,746,218	3,860	1,198,389	295	55,586
New Jersey.....	5,764	5,026	5,362	2,021,841	2,016	1,006,946	2,848	918,827	498	96,068
Pennsylvania.....	15,491	12,361	13,789	5,455,858	6,056	3,172,128	6,546	2,054,930	1,187	228,800
Maryland.....	4,254	3,689	3,993	934,108	1,346	453,085	1,862	390,047	785	90,976
Southern states.....	138,177	109,623	120,000	25,622,047	54,577	14,345,914	37,885	7,598,472	27,538	3,677,661
Virginia.....	3,658	3,478	3,456	883,908	1,783	535,847	1,260	288,836	413	59,225
North Carolina.....	42,142	33,467	36,356	7,503,512	15,909	4,065,176	12,235	2,374,443	8,212	1,063,893
South Carolina.....	42,950	34,182	37,271	7,701,689	18,279	4,459,175	10,157	2,023,517	8,835	1,218,997
Georgia.....	27,459	21,956	24,130	5,313,392	10,851	3,067,435	7,873	1,563,361	5,406	682,596
Alabama.....	12,834	9,616	11,480	2,457,928	5,009	1,361,106	3,377	693,647	3,094	403,175
Mississippi.....	2,439	2,056	2,161	518,448	809	246,085	796	198,037	556	74,826
Louisiana.....	1,108	652	828	198,812	232	88,453	408	87,639	188	22,720
Texas.....	1,583	953	993	269,737	420	144,315	368	89,781	205	35,641
Kentucky.....	1,188	961	1,031	243,215	354	103,866	576	121,765	101	17,584
Tennessee.....	2,816	2,302	2,294	531,406	931	274,456	835	157,446	528	99,504
Western states.....	3,204	2,337	2,496	738,328	739	331,491	1,467	363,057	290	43,780
Ohio.....	120	104	107	27,185	20	11,290	87	15,895		
Indiana.....	1,596	1,047	1,174	302,035	319	109,713	774	180,436	81	11,886
Wisconsin.....	286	227	161	43,760	65	21,840	88	20,620	8	1,300
All other Western states.....	1,202	959	1,054	365,348	335	188,648	518	146,106	201	30,594
All other states.....	361	286	248	74,554	67	23,655	130	42,616	51	8,283

COTTON MANUFACTURES.

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TABLE 21.—COTTON GOODS—DETAILED SUMMARY, BY STATES AND GEOGRAPHIC DIVISIONS: 1905—Continued.

STATE.	AVERAGE NUMBER OF WAGE-EARNERS, INCLUDING PIECEWORKERS, EMPLOYED DURING EACH MONTH.											
	Men 16 years and over.											
	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
United States.....	152,133	151,524	150,729	150,075	147,936	146,342	140,724	131,918	135,524	144,418	147,143	150,150
New England states.....	81,079	81,121	80,442	80,159	79,090	78,103	74,019	66,805	67,656	74,649	76,209	78,464
Maine.....	5,534	5,505	5,354	5,592	5,425	5,406	5,064	4,769	4,742	5,274	5,562	5,649
New Hampshire.....	9,688	9,717	9,681	9,728	9,843	9,774	9,339	9,358	9,668	9,830	9,812	9,926
Vermont.....	385	412	406	409	371	351	341	335	359	359	359	353
Massachusetts.....	47,112	47,212	47,000	46,604	45,996	45,021	42,063	35,497	35,657	41,447	42,655	44,452
Rhode Island.....	11,016	10,888	10,633	10,509	10,312	10,509	10,409	10,152	10,329	10,592	10,722	11,045
Connecticut.....	7,344	7,387	7,368	7,317	7,143	7,042	6,803	6,694	6,901	7,147	7,099	7,039
Middle states.....	14,326	14,121	14,083	13,760	13,536	13,438	13,453	13,447	13,473	14,019	14,114	14,454
New York.....	4,593	4,451	4,398	4,318	4,336	4,288	4,357	4,305	4,140	4,522	4,663	4,837
New Jersey.....	2,093	2,076	2,066	2,030	1,996	1,957	1,961	1,966	1,964	2,011	2,030	2,042
Pennsylvania.....	6,261	6,224	6,229	6,043	5,867	5,910	5,859	5,853	6,047	6,144	6,055	6,180
Maryland.....	1,379	1,370	1,330	1,369	1,337	1,283	1,276	1,323	1,322	1,342	1,366	1,395
Southern states.....	55,822	55,374	55,292	55,271	54,467	54,059	52,627	51,115	53,737	54,851	55,963	56,346
Virginia.....	1,786	1,788	1,788	1,785	1,797	1,801	1,796	1,709	1,705	1,791	1,823	1,827
North Carolina.....	16,478	16,464	16,437	16,363	16,098	15,759	14,844	14,141	15,633	16,000	16,302	16,389
South Carolina.....	18,021	18,146	18,241	18,375	18,111	18,113	17,926	18,224	18,562	18,498	18,442	18,689
Georgia.....	11,395	10,972	10,891	10,876	10,749	10,916	10,640	9,733	10,367	10,814	11,344	11,515
Alabama.....	5,060	5,039	4,974	5,041	5,035	4,896	4,910	4,966	4,974	5,119	5,149	4,945
Mississippi.....	868	870	864	851	821	818	814	707	776	775	779	765
Louisiana.....	294	294	294	241	187	187	187	187	187	242	242	242
Texas.....	511	485	475	402	408	374	371	312	326	375	498	503
Kentucky.....	400	397	405	400	383	339	297	296	298	316	341	376
Tennessee.....	1,009	919	923	937	878	856	842	840	909	921	1,043	1,095
Western states.....	848	850	852	812	780	684	570	496	605	807	766	798
Ohio.....	26	22	21	22	21	20	22	20	19	19	19	9
Indiana.....	374	381	377	374	358	277	209	184	260	386	328	320
Wisconsin.....	93	86	89	49	49	54	57	56	53	50	50	94
All other Western states..	355	361	365	367	352	333	282	236	273	352	369	375
All other states.....	58	58	60	73	63	58	55	55	53	92	91	88

STATE.	AVERAGE NUMBER OF WAGE-EARNERS, INCLUDING PIECEWORKERS, EMPLOYED DURING EACH MONTH—continued.											
	Women 16 years and over.											
	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
United States.....	131,060	130,545	129,946	129,342	127,542	125,654	119,978	110,376	114,060	123,557	126,151	128,291
New England states.....	74,507	74,340	73,728	73,653	72,945	71,851	67,925	60,199	61,321	68,613	70,186	72,088
Maine.....	6,656	6,648	6,464	6,683	6,555	6,509	6,179	5,993	6,044	6,391	6,727	6,779
New Hampshire.....	9,519	9,541	9,550	9,620	9,783	9,738	9,500	9,360	9,607	9,807	9,744	9,731
Vermont.....	466	430	433	453	457	437	427	384	415	437	397	424
Massachusetts.....	42,764	42,655	42,549	42,302	41,795	40,765	37,684	30,539	31,222	37,367	38,701	40,305
Rhode Island.....	9,778	9,732	9,409	9,315	9,093	9,224	9,246	9,046	9,144	9,418	9,478	9,478
Connecticut.....	5,324	5,334	5,323	5,280	5,262	5,178	4,889	4,877	4,889	5,193	5,139	5,208
Middle states.....	15,431	15,303	15,282	14,959	14,941	14,849	14,704	14,596	14,960	15,308	15,438	15,621
New York.....	3,885	3,807	3,872	3,780	3,811	3,771	3,792	3,690	3,724	3,941	4,072	4,175
New Jersey.....	2,928	2,925	2,881	2,860	2,838	2,822	2,798	2,816	2,821	2,823	2,828	2,836
Pennsylvania.....	6,739	6,676	6,636	6,427	6,429	6,409	6,299	6,259	6,603	6,683	6,660	6,732
Maryland.....	1,879	1,895	1,893	1,892	1,863	1,847	1,815	1,831	1,812	1,861	1,878	1,878
Southern states.....	39,294	39,029	39,079	38,941	37,968	37,632	36,249	34,565	36,446	37,802	38,830	38,786
Virginia.....	1,287	1,277	1,274	1,279	1,288	1,288	1,288	1,137	1,137	1,276	1,290	1,299
North Carolina.....	12,577	12,581	12,764	12,608	12,338	12,125	11,415	10,909	12,081	12,383	12,535	12,504
South Carolina.....	10,152	10,259	10,253	10,475	10,180	10,281	9,907	9,844	9,942	10,031	10,263	10,297
Georgia.....	8,288	8,040	8,000	7,987	7,935	7,914	7,688	6,939	7,424	7,860	8,171	8,230
Alabama.....	3,541	3,540	3,478	3,476	3,386	3,356	3,298	3,247	3,217	3,328	3,375	3,282
Mississippi.....	853	844	834	833	807	802	807	695	766	770	780	761
Louisiana.....	543	545	545	427	307	307	307	307	307	435	433	433
Texas.....	480	445	428	357	324	316	324	274	282	330	435	421
Kentucky.....	643	639	651	649	629	515	487	484	473	557	583	602
Tennessee.....	930	859	852	850	774	728	728	729	817	832	965	956
Western states.....	1,700	1,742	1,729	1,657	1,561	1,200	976	893	1,240	1,689	1,555	1,662
Ohio.....	91	91	91	90	86	85	87	90	89	88	89	67
Indiana.....	887	921	927	928	881	551	425	345	698	997	858	870
Wisconsin.....	143	149	129	60	58	58	66	65	62	59	56	151
All other Western states..	579	581	582	579	536	506	398	393	391	545	552	574
All other states.....	128	131	128	132	127	122	124	123	123	145	142	135

TABLE 21.—COTTON GOODS—DETAILED SUMMARY, BY STATES AND GEOGRAPHIC DIVISIONS: 1905—Continued.

STATE.	AVERAGE NUMBER OF WAGE-EARNERS, INCLUDING PIECEWORKERS, EMPLOYED DURING EACH MONTH—continued.											
	Children under 16 years.											
	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
United States	41,423	41,180	41,039	40,803	40,059	39,627	38,318	37,133	38,494	39,961	40,787	41,524
New England states	9,782	9,829	9,751	9,694	9,615	9,510	9,077	8,575	8,570	9,108	9,320	9,789
Maine	599	609	588	606	598	613	583	539	538	585	607	615
New Hampshire	400	374	375	390	417	423	439	414	421	425	416	414
Vermont	32	47	42	40	44	67	76	54	42	51	58	59
Massachusetts	5,933	6,002	5,990	5,922	5,838	5,707	5,302	4,917	4,902	5,295	5,417	5,807
Rhode Island	2,018	2,003	1,937	1,915	1,911	1,913	1,918	1,869	1,892	1,943	1,984	2,061
Connecticut	800	794	819	821	807	787	759	782	775	809	838	833
Middle states	2,871	2,862	2,827	2,814	2,701	2,722	2,689	2,654	2,727	2,760	2,764	2,789
New York	315	298	318	307	297	311	318	308	269	265	261	273
New Jersey	502	515	518	503	486	477	485	487	490	502	506	505
Pennsylvania	1,241	1,222	1,154	1,180	1,150	1,161	1,118	1,085	1,201	1,241	1,251	1,240
Maryland	813	827	837	824	768	773	768	774	767	752	746	771
Southern states	28,427	28,135	28,104	27,953	27,406	27,120	26,267	25,630	26,864	27,699	28,313	28,538
Virginia	422	420	420	423	422	423	418	350	350	423	441	444
North Carolina	8,496	8,468	8,558	8,436	8,305	8,112	7,614	7,326	8,095	8,263	8,405	8,466
South Carolina	8,770	8,925	8,958	8,964	8,744	8,746	8,658	8,705	8,840	8,798	8,918	8,994
Georgia	5,815	5,468	5,396	5,365	5,370	5,393	5,176	4,833	5,120	5,475	5,691	5,770
Alabama	3,148	3,098	3,052	3,123	3,030	2,977	2,931	3,060	3,013	3,243	3,233	3,220
Mississippi	614	611	577	604	559	553	541	469	533	545	538	528
Louisiana	261	261	261	209	158	158	158	158	158	158	158	158
Texas	223	225	231	206	200	175	196	156	168	193	245	242
Kentucky	120	116	122	113	119	97	78	78	76	89	95	109
Tennessee	558	543	529	510	499	486	497	495	511	512	589	607
Western states	308	316	316	294	293	234	245	234	291	320	306	323
Ohio	91	94	98	91	94	40	45	43	101	108	82	85
Indiana	25	16	13	2	2	4	3	3	3	3	3	19
Wisconsin	192	206	205	201	197	190	197	188	187	209	221	219
All other Western states ..	35	38	41	48	44	41	40	40	42	74	84	85
All other states	35	38	41	48	44	41	40	40	42	74	84	85

STATE.	SKILLED OPERATIVES (AVERAGE NUMBER).							MACHINERY.		
	Spinners, mule.	Spinners, frame.			Weavers.			Producing spindles, not including twisting and doubling spindles (number).		
		Men 16 years and over.	Men 16 years and over.	Women 16 years and over.	Children under 16 years.	Men 16 years and over.	Women 16 years and over.	Children under 16 years.	Total.	Mule.	Frame.
United States	4,866	10,709	25,701	19,078	48,248	48,325	2,234	23,155,613	5,221,857	17,933,756
New England states	3,691	3,803	12,377	2,535	24,767	28,449	716	13,911,241	4,147,290	9,763,951
Maine	207	99	1,310	177	1,776	2,725	12	891,246	223,724	667,522
New Hampshire	257	373	1,441	184	2,430	3,961	45	1,301,281	269,076	1,032,205
Vermont	19	14	90	32	103	184	.....	108,028	27,716	80,312
Massachusetts	2,135	2,482	7,305	1,402	14,552	16,473	531	8,411,249	2,329,060	6,082,189
Rhode Island	631	346	1,383	460	3,710	3,506	62	2,049,522	850,238	1,199,284
Connecticut	442	489	848	280	2,196	1,600	66	1,149,915	447,476	702,439
Middle states	714	174	1,241	264	4,315	5,236	170	1,541,167	845,647	695,520
New York	342	100	482	37	934	1,572	19	704,634	376,502	328,132
New Jersey	219	22	174	10	343	202	1	436,764	348,804	87,960
Pennsylvania	153	19	242	151	2,810	2,728	91	266,097	120,341	145,756
Maryland .....	.....	33	343	66	228	734	59	133,672	.....	133,672
Southern states	434	6,637	11,717	16,187	19,061	13,813	1,342	7,494,905	194,852	7,300,053
Virginia	27	290	408	281	756	525	45	193,062	3,088	189,974
North Carolina	58	1,759	3,813	4,192	4,714	3,724	335	1,880,950	60,760	1,814,190
South Carolina	58	2,320	3,364	5,835	7,707	3,598	459	2,864,092	16,112	2,848,980
Georgia	221	984	1,877	3,086	3,035	2,900	267	1,316,573	69,272	1,247,301
Alabama	12	785	1,269	1,863	2,065	1,591	136	758,087	7,000	751,087
Mississippi .....	.....	70	169	275	203	437	14	125,352	.....	125,352
Louisiana	4	.....	72	42	.....	227	51	59,052	2,500	56,552
Texas .....	.....	63	167	186	209	171	.....	68,170	.....	68,170
Kentucky	24	42	200	11	35	187	15	76,192	21,120	55,072
Tennessee	30	324	378	416	337	453	20	153,375	10,000	143,375
Western states	27	82	325	52	80	750	6	186,904	34,068	152,836
Ohio	17	62	238	38	27	466	.....	119,252	18,068	101,184
Indiana .....	.....	20	23	3	15	59	.....	13,136	.....	13,136
Wisconsin .....	.....	.....	64	11	38	205	5	54,516	16,000	38,516
All other Western states ..	10
All other states	13	41	40	25	77	21,396	21,396

COTTON MANUFACTURES.

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TABLE 21.—COTTON GOODS—DETAILED SUMMARY, BY STATES AND GEOGRAPHIC DIVISIONS: 1905—Continued.

STATE.	MACHINERY—continued.									MISCELLANEOUS EXPENSES.				
	Looms (number).									Total.	Rent of works.	Taxes.	Rent of offices, interest, insurance, etc.	Contract work.
	Total.	On plain cloths.				On twills, including sateens.	On fancy weaves.	On tapes and other narrow goods.	On bags and other special fabrics.					
		Less than 28 inches wide.	28 to 32 inches wide.	32 to 36 inches wide.	More than 36 inches wide.									
United States.....	540,910	31,901	115,966	94,649	160,231	68,038	62,214	1,439	6,472	\$29,930,801	\$659,745	\$4,141,364	\$24,678,875	\$450,817
New England states.....	324,058	11,228	81,742	40,343	89,978	55,093	41,443	711	3,520	15,738,154	492,877	2,770,671	12,148,247	326,359
Maine.....	24,189	144	3,495	600	10,924	4,770	3,419	82	755	1,203,933	10,532	265,519	709,467	218,415
New Hampshire.....	36,115	753	16,438	2,687	6,608	9,051	283		295	1,827,545	300	288,211	1,528,975	10,059
Vermont.....	2,539	801	1,280		155	303				101,434		5,806	95,628	
Massachusetts.....	194,686	9,394	53,848	32,145	47,574	23,999	26,646	210	870	9,276,447	12,595	1,821,296	7,435,765	6,791
Rhode Island.....	45,733	46	3,301	2,237	17,553	12,037	8,543	416	1,600	2,165,685	459,302	264,861	1,352,864	88,658
Connecticut.....	20,796	90	3,380	2,674	7,164	4,933	2,552	3		1,163,110	10,148	124,978	1,025,548	2,436
Middle states.....	31,510	5,722	1,002	2,556	8,060	1,915	10,007	64	1,234	3,598,481	157,333	303,726	3,059,062	78,360
New York.....	12,464	4,808	50	1,254	4,233	1,126	145		848	954,185	5,750	141,078	806,574	783
New Jersey.....	2,237	28	4	100	810	462	716		117	450,390	3,456	66,918	363,853	16,163
Pennsylvania.....	14,083	545	438	796	2,985	327	8,633	64	295	2,026,752	144,157	67,584	1,753,597	61,414
Maryland.....	2,726	341	510	406	932		513		24	167,154	3,970	28,146	135,038	
Southern states.....	179,512	14,519	33,117	48,613	59,706	11,030	10,695	270	1,562	10,312,913	5,302	1,040,438	9,239,297	27,876
Virginia.....	5,464	1,432	980		3,017		35			284,601	2,800	29,690	252,111	
North Carolina.....	43,219	7,237	10,280	7,982	10,229	2,206	4,589		696	2,637,939		256,269	2,376,861	4,809
South Carolina.....	72,702	3,153	9,209	19,599	32,757	4,428	3,084	270	202	3,229,796		377,609	2,829,120	23,067
Georgia.....	31,210	1,600	5,216	12,335	6,705	3,066	1,702		586	2,396,611		277,199	2,119,412	
Alabama.....	15,659	342	5,729	4,448	4,223	568	349			1,002,033		50,241	951,792	
Mississippi.....	3,472	685	476	1,101	1,148	62				232,411		12,053	220,358	
Louisiana.....	1,600			600	616		384			69,053		3,999	65,054	
Texas.....	1,886		510	700	622	50			4	93,436		8,413	85,023	
Kentucky.....	1,292		122	1,170						124,413	1,302	8,863	114,248	
Tennessee.....	3,008	70	595	678	389	650	552		74	242,620	1,200	16,102	225,318	
Western states.....	5,352	432	55	2,959	1,337		69	394	106	258,836	4,233	24,276	212,105	18,222
Ohio.....	400							394	6	10,735	4,233	1,460	5,042	
Indiana.....	3,165	410	45	1,985	725					119,844		13,501	106,343	
Wisconsin.....	364	20	10	324	10					17,568		2,311	15,257	
All other Western states.....	1,423	2		650	602		69		100	110,689		7,004	85,463	18,222
All other states.....	478		50	178	250					22,417		2,253	20,164	

STATE.	MATERIALS USED.									Products, total value.
	Aggregate cost.	Principal materials.			Fuel.	Rent of power and heat.	Mill supplies.	All other materials.	Freight.	
		Total cost.	Purchased in raw state.	Purchased in partially manufactured form.						
United States.....	\$282,047,648	\$255,454,965	\$221,821,944	\$33,633,021	\$9,902,348	\$464,923	\$7,297,475	\$8,177,736	\$750,201	\$442,451,218
New England states.....	135,903,140	121,502,143	104,985,215	16,516,928	4,980,056	148,738	3,865,658	5,068,219	338,296	224,072,562
Maine.....	9,173,226	8,419,239	7,810,400	608,839	220,391	16,325	314,794	183,206	19,271	15,405,823
New Hampshire.....	18,496,971	16,856,243	15,705,596	1,150,647	626,049	29,250	269,027	681,735	34,667	29,540,770
Vermont.....	726,094	660,292	628,710	31,582	31,005	300	32,452	200	1,845	1,086,522
Massachusetts.....	79,767,088	70,859,128	62,232,818	8,626,310	3,031,717	84,418	2,185,291	3,453,493	153,041	129,171,449
Rhode Island.....	17,669,470	15,832,332	11,747,125	4,085,207	720,971	14,845	651,012	373,940	76,370	30,628,843
Connecticut.....	10,070,291	8,874,909	6,860,566	2,014,343	349,953	3,600	413,082	375,645	53,102	18,239,155
Middle states.....	30,630,344	27,586,099	15,050,092	12,536,007	798,922	129,117	523,975	1,478,981	113,250	50,977,986
New York.....	8,402,601	7,665,198	6,190,179	1,475,019	243,687	81,512	135,015	230,009	47,180	13,017,904
New Jersey.....	5,142,785	4,160,093	2,647,840	1,512,253	175,705	2,865	93,192	694,950	15,980	8,578,527
Pennsylvania.....	13,211,483	12,072,237	2,918,136	9,154,101	302,761	44,740	201,670	550,838	39,237	24,136,813
Maryland.....	3,873,475	3,688,571	3,293,937	394,634	76,769		94,098	3,184	10,853	5,244,742
Southern states.....	112,832,038	103,878,739	99,508,500	4,370,239	4,021,168	170,799	2,876,643	1,592,646	292,043	163,368,059
Virginia.....	2,802,260	2,688,898	2,596,425	92,473	48,659		62,292	2,026	385	4,484,131
North Carolina.....	33,025,340	30,492,830	27,822,753	2,670,077	1,323,489	9,332	771,634	313,544	114,511	47,254,054
South Carolina.....	34,308,311	31,239,201	30,769,178	470,023	1,478,569	94,485	1,130,578	324,437	41,041	49,437,644
Georgia.....	23,832,297	21,851,341	21,132,744	718,597	619,665	55,160	534,429	671,020	100,682	35,174,248
Alabama.....	12,010,798	11,312,561	11,085,763	226,798	299,692	3,500	204,499	176,327	14,219	16,760,332
Mississippi.....	1,648,842	1,456,297	1,404,662	51,635	93,388		73,641	17,217	8,299	2,462,808
Louisiana.....	780,633	709,026	680,311	28,715	35,853		10,075	14,431	11,248	1,081,951
Texas.....	1,017,608	929,964	918,977	10,987	42,250	8,322	25,247	11,825		1,587,289
Kentucky.....	1,164,976	1,090,105	1,051,887	38,218	23,949		6,922	44,000		1,564,618
Tennessee.....	2,240,973	2,108,516	2,045,800	62,716	55,654		57,326	17,819	1,658	3,560,984
Western states.....	2,505,458	2,330,580	2,121,421	209,159	93,407	11,909	27,783	35,167	6,612	3,757,155
Ohio.....	88,546	84,185		84,185	1,740		800	1,544	277	154,250
Indiana.....	1,139,702	1,063,435	1,058,538	4,897	55,825		8,500	6,942	5,000	1,483,513
Wisconsin.....	377,914	363,472	341,234	22,238	8,610	400	2,112	2,900	420	553,007
All other Western states.....	899,296	819,488	721,649	97,839	27,232	11,509	16,371	23,781	915	1,566,385
All other states.....	176,668	157,404	156,716	688	8,765	4,360	3,416	2,723		275,456

MANUFACTURES.

TABLE 21.—COTTON GOODS—DETAILED SUMMARY, BY STATES AND GEOGRAPHIC DIVISIONS: 1905—Continued.

STATE.	POWER.														
	Number of establishments reporting.	Total horsepower.	Owned.									Rented.		Furnished to other establishments, horsepower	
			Engines.				Water wheels.		Electric motors.		Other power, horsepower.	Electric motors.			Other kind, horsepower.
			Steam.		Gas and gasoline.										
			Number.	Horsepower.	Number.	Horsepower.									
United States	1,073	1,031,843	2,002	702,023	16	1,695	1,218	251,884	767	52,734	722	302	13,565	9,220	15,739
New England states	307	553,677	912	368,888	1	15	799	154,527	303	22,455		33	1,285	6,507	13,988
Maine	15	39,836	26	10,930			124	25,751	41	2,600		8	555		6,333
New Hampshire	25	79,405	90	40,303			104	31,072	40	3,865		8	465	3,700	7,200
Vermont	4	4,253	7	2,964			9	1,259	1	10		1	20		2
Massachusetts	142	309,616	594	237,868			292	54,422	189	14,549		4	65	2,712	375
Rhode Island	72	71,925	115	52,382			132	18,878	25	400		11	170	95	60
Connecticut	49	48,642	80	24,441	1	15	138	23,145	7	1,031		1	10		18
Middle states	200	76,460	289	60,327	6	212	72	11,169	127	1,915	450	26	674	1,713	765
New York	30	25,674	49	16,956	2	85	36	7,435	22	212	450	15	527	9	370
New Jersey	17	15,698	87	14,491			12	965	17	180				62	28
Pennsylvania	141	22,843	129	19,330	4	127	7	324	84	1,273		11	147	1,642	367
Maryland	12	12,245	24	9,550			17	2,445	4	250					
Southern states	548	390,695	769	262,993	8	1,463	340	85,888	329	28,078	72	177	11,201	1,000	986
Virginia	10	9,502	15	5,920			33	3,420	3	162					00
North Carolina	212	93,548	283	68,359	8	1,463	132	21,643	44	1,333		3	750		140
South Carolina	127	156,117	183	96,842			84	29,568	200	22,720		153	6,987		654
Georgia	103	80,536	135	50,972			64	22,511	58	3,101	30	15	2,922	1,000	32
Alabama	46	28,084	75	18,860			21	8,285	13	579		2	360		
Mississippi	14	5,904	21	5,825					2	37	42				
Louisiana	3	2,050	4	2,020					1	30					
Texas	13	3,523	17	3,270					4	71		4	182		75
Kentucky	4	3,085	9	3,085											
Tennessee	16	8,346	27	7,840			6	461	4	45					25
Western states	15	10,211	27	9,215	1	5	7	300	8	286		66	405		
Ohio	3	330	2	275	1	5	2	50							
Indiana	5	5,266	13	5,250					2	16					
Wisconsin	3	940	3	670			5	250				1	20		
All other Western states	4	3,675	9	3,020					6	270		65	385		
All other states	3	800	5	600							200				

TABLE 22.—COTTON GOODS—DETAILED SUMMARY OF MATERIALS AND PRODUCTS, UNITED STATES, BY GEOGRAPHIC DIVISIONS: 1905.

DIVISION.	MATERIALS USED.									
	Total cost.	Cotton.								
		Sea-island.			Other domestic.			Egyptian and other foreign.		
		Bales.	Pounds.	Cost.	Bales.	Pounds.	Cost.	Bales.	Pounds.	Cost.
United States	\$282,047,648	54,384	21,862,032	\$4,252,374	3,629,085	1,807,512,278	\$209,972,665	59,620	43,700,406	\$7,596,905
New England states.....	135,903,140	38,549	15,531,019	2,993,434	1,558,094	794,520,587	96,227,838	45,488	33,378,309	5,763,943
Middle states	30,726,671	11,308	4,301,170	929,735	221,643	111,973,103	13,166,496	7,660	5,634,006	1,040,133
Southern states	112,912,379	4,527	2,029,843	329,205	1,813,659	882,918,392	98,456,910	6,472	4,688,091	792,829
Western states	2,505,458				35,689	18,100,196	2,121,421			

DIVISION.	MATERIALS USED—continued.													
	Yarns, purchased.													
	Cotton.		Woolen.		Worsted.		Silk.		Spun silk.		Linen.		Other yarns.	
	Pounds.	Cost.	Pounds.	Cost.	Pounds.	Cost.	Pounds.	Cost.	Pounds.	Cost.	Pounds.	Cost.	Pounds.	Cost.
United States.....	91,594,658	\$21,601,483	979,385	\$466,120	419,519	\$306,109	241,332	\$831,477	128,243	\$314,186	515,897	\$143,542	814,425	\$139,712
New England states.....	29,814,155	8,376,195	710,376	334,486	219,130	163,523	195,871	690,801	42,490	129,658	317,576	88,609	323,803	78,377
Middle states.....	48,972,626	10,846,351	267,709	131,084	200,389	142,586	45,461	134,676	85,753	184,528	197,321	54,733	478,480	59,645
Southern states.....	12,189,257	2,208,416											8,542	1,408
Western states.....	618,620	170,321	1,300	550							1,000	200	3,600	282

TABLE 22.—COTTON GOODS—DETAILED SUMMARY OF MATERIALS AND PRODUCTS, UNITED STATES, BY GEOGRAPHIC DIVISIONS: 1905—Continued.

DIVISION.	MATERIALS USED—continued.									
	Waste.		Starch.		Chemicals and dyestuffs.	Fuel.	Rent of power and heat.	Mill supplies.	All other materials.	Freight.
	Pounds.	Cost.	Pounds.	Cost.						
United States.....	76,522,645	\$3,801,810	53,882,721	\$1,491,239	\$4,537,343	\$9,902,348	\$464,923	\$7,297,475	\$8,177,736	\$750,201
New England states.....	64,320,698	3,115,096	23,680,862	731,477	2,802,106	4,980,086	148,758	3,865,658	5,068,219	338,296
Middle states.....	5,183,974	277,348	4,108,805	113,952	591,611	798,922	133,477	526,595	1,481,549	113,250
Southern states.....	6,282,973	387,266	25,706,370	637,631	1,135,099	4,029,933	170,799	2,877,439	1,592,801	292,043
Western states.....	735,000	21,500	386,684	8,179	7,927	93,407	11,909	27,783	35,167	6,612

DIVISION.	PRODUCTS.									
	Total value.	Plain cloths for printing or converting.				Brown or bleached sheetings and shirtings.		Twill and sateens.		
		Not finer than No. 28 warp.		Finer than No. 28 warp.						
		Square yards.	Value.	Square yards.	Value.	Square yards.	Value.	Square yards.	Value.	
United States.....	\$442,451,218	812,249,764	\$32,945,694	1,005,966,408	\$47,365,918	1,172,309,182	\$61,253,376	366,142,513	\$23,701,305	
New England states.....	224,072,562	575,335,716	22,992,978	556,187,298	28,247,137	373,140,737	22,383,212	277,867,179	19,214,221	
Middle states.....	51,127,708	77,065,904	3,219,071	3,828,075	287,420	19,439,373	1,594,698	9,181,880	514,140	
Southern states.....	163,493,793	159,748,144	6,730,645	445,951,035	18,831,361	737,049,905	35,515,020	79,093,454	3,972,944	
Western states.....	3,757,155	100,000	3,000			42,679,167	1,760,446			

DIVISION.	PRODUCTS—continued.									
	Fancy woven fabrics.		Ginghams.		Duck.				Drills.	
					Sail.		Other.			
	Square yards.	Value.	Square yards.	Value.	Square yards.	Value.	Square yards.	Value.	Square yards.	Value.
United States.....	306,254,685	\$28,486,342	302,316,132	\$22,471,867	9,586,519	\$1,540,745	113,014,693	\$15,465,237	194,735,303	\$12,596,063
New England states.....	215,165,411	20,292,762	163,157,337	13,716,901	656,858	115,265	22,377,910	2,697,652	30,047,554	2,313,409
Middle states.....	41,333,338	4,910,896	8,316,240	736,492	2,442,721	730,084	14,896,731	3,579,094	151,415	10,175
Southern states.....	49,755,936	3,282,684	130,842,555	8,018,474	6,486,940	695,396	74,909,659	9,085,595	164,285,778	10,252,187
Western states.....							830,363	102,896	250,556	20,292

DIVISION.	PRODUCTS—continued.									
	Ticks, denims, and stripes.		Cottonades.		Napped fabrics.		Corduroy, cotton velvet, and plush.		Mosquito and other netting.	
							Square yards.	Value.		
Square yards.	Value.	Square yards.	Value.	Square yards.	Value.	Square yards.	Value.	Square yards.	Value.	
United States.....	256,375,486	\$23,797,578	25,362,346	\$2,998,971	330,808,140	\$26,108,315	16,014,556	\$4,790,573	36,232,918	\$794,953
New England states.....	109,080,690	11,151,740	2,702,418	332,397	243,492,239	20,385,676	7,571,915	2,151,434	16,024,886	414,296
Middle states.....	8,658,573	1,109,241	8,127,997	1,471,292	1,218,627	63,761	6,729,187	2,387,566	15,435,864	286,359
Southern states.....	138,636,223	11,536,597	14,531,931	1,195,282	86,097,274	5,658,878	1,713,454	251,573	4,772,168	94,298
Western states.....										

DIVISION.	PRODUCTS—continued.									
	Upholstery goods.								Bags and bagging.	
	Tapestries. (Piece goods and curtains.)		Chenille curtains.		Lace and lace curtains.		Other, including covers.			
	Square yards.	Value.	Square yards.	Value.	Square yards.	Value.	Square yards.	Value.	Square yards.	Value.
United States.....	9,605,006	\$4,242,506	268,168	\$93,196	53,511,222	\$7,208,211	2,207,816	\$567,785	57,067,663	\$3,953,732
New England states.....	76,358	10,078			511,463	49,948	210,000	15,000	22,756,744	1,865,945
Middle states.....	9,303,648	4,202,055	268,168	93,196	51,975,759	6,916,363	1,180,573	507,937	595,561	165,283
Southern states.....	225,000	30,373					817,243	44,848	25,026,279	1,512,567
Western states.....					1,024,000	241,900			8,689,079	409,937

MANUFACTURES.

TABLE 22.—COTTON GOODS—DETAILED SUMMARY OF MATERIALS AND PRODUCTS, UNITED STATES, BY GEOGRAPHIC DIVISIONS: 1905—Continued.

DIVISION.	PRODUCTS—continued.									
	Tape and webbing.		Linen toweling and other linen goods.		Other towels and toweling.		Yarns for sale.		Sewing cotton.	
	Pieces.	Value.	Square yards.	Value.	Square yards.	Value.	Pounds.	Value.	Pounds.	Value.
United States	396,160	\$49,546	1,084,640	\$175,364	40,280,292	\$4,365,470	364,472,753	\$79,885,387	17,163,741	\$15,043,043
New England states.....	158,660	23,334	850,710	133,842	13,952,833	1,187,980	113,541,375	30,494,560	11,881,169	10,486,531
Middle states.....	230,000	22,462	33,930	11,522	10,052,125	1,583,818	44,932,994	9,415,333	4,570,031	4,403,743
Southern states.....					15,975,334	1,569,672	204,224,672	39,540,126	412,541	92,769
Western states.....	7,500	3,750	200,000	30,000	300,000	24,000	1,773,712	435,368	300,000	60,000

DIVISION.	PRODUCTS—continued.							
	Twine.		Batting and wadding.		Waste for sale.		Other products of cotton.	All other products.
	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.		
United States	6,676,573	\$1,282,947	10,165,850	\$1,173,343	247,335,102	\$10,049,037	\$2,605,801	\$7,438,913
New England states.....	612,278	247,187	8,240,852	933,594	157,220,535	7,049,415	1,009,201	4,156,867
Middle states.....	1,419,433	216,370			12,583,697	539,570	737,902	1,411,865
Southern states.....	3,082,821	478,454	665,834	34,311	76,596,702	2,434,388	813,773	1,821,573
Western states.....	1,562,041	340,936	1,259,164	205,438	934,168	25,664	44,925	48,603

DIVISION.	WEIGHT OF PRODUCTS (POUNDS).			YARN PRODUCED (POUNDS).		
	Yarns spun and woven in mill.	Yarns spun and not woven in mill.	Other products.	No. 20 and under.	No. 21 to 40.	No. 41 and over.
United States	1,150,575,140	378,908,578	222,279,679	803,764,679	601,971,584	123,747,455
New England states.....	547,252,776	120,696,030	125,914,258	249,218,058	317,476,791	101,253,957
Middle states.....	52,799,838	50,256,499	15,423,028	68,769,518	29,651,774	4,635,045
Southern states.....	539,137,338	206,281,987	78,624,813	476,894,080	250,666,842	17,858,453
Western states.....	11,385,138	1,674,062	2,317,580	8,883,023	4,176,177	

DIVISION.	BLEACHING, MERCERIZING, DYEING, AND PRINTING.									
	Bleached.						Mercerized.			
	Cloth.		Cotton yarn.		Cotton stock.		Cloth.		Yarn.	
	Square yards.	Added value.	Pounds.	Added value.	Pounds.	Added value.	Square yards.	Added value.	Pounds.	Added value.
United States	163,850,648	\$726,520	26,323,599	\$366,831	12,815,649	\$247,304	550,711	\$1,686	1,045,409	\$56,951
New England states.....	133,299,370	593,269	21,014,749	281,247	10,428,099	186,594	550,711	1,686	1,016,124	51,387
Middle states.....	16,619,618	68,706	4,212,317	71,296	1,197,170	42,518			29,285	5,564
Southern states.....	13,579,660	56,525	1,096,533	14,288	890,380	12,192				
Western states.....	352,000	8,020			300,000	6,000				

DIVISION.	BLEACHING, MERCERIZING, DYEING, AND PRINTING—continued.									
	Dyed.						Printed.		Printing machines (number).	
	Cloth.		Yarn.		Cotton stock.		Cloth.			
	Square yards.	Added value.	Pounds.	Added value.	Pounds.	Added value.	Square yards.	Added value.		
United States	72,715,539	\$664,636	105,122,713	\$3,366,044	64,572,211	\$1,455,386	185,040,034	\$2,671,674	57	
New England states.....	21,579,150	215,084	59,022,072	2,057,163	21,793,376	593,439	181,332,034	2,633,774	51	
Middle states.....	20,962,089	220,724	11,817,196	452,128	3,499,936	72,127	108,000	1,900		
Southern states.....	30,174,300	228,828	34,273,545	856,605	39,188,899	785,320	3,600,000	36,000	6	
Western states.....			9,900	148	90,000	4,500				

COTTON SMALL WARES.

The considerable number of establishments which use cotton yarn as their chief material, and yet do not produce commodities technically described as cotton goods, were in 1900, for the first time, taken out of the general tabulation of cotton manufactures and classified separately. The facts relating to these establishments are presented in Table 23, a comparative summary.

TABLE 23.—Cotton small wares—comparative summary, with per cent of increase: 1905 and 1900.

	1905	1900	Per cent of increase.
Number of establishments.....	77	82	16.1
Capital.....	\$8,010,491	\$6,397,385	25.2
Salaried officials, clerks, etc., number.....	243	189	28.6
Salaries.....	\$326,124	\$226,625	43.9
Wage-earners, average number.....	5,416	4,932	9.8
Total wages.....	\$1,828,100	\$1,563,442	16.9
Men 16 years and over.....	1,565	1,367	14.5
Wages.....	\$740,538	\$671,516	10.3
Women 16 years and over.....	3,452	3,173	8.8
Wages.....	\$1,023,474	\$828,732	23.5
Children under 16 years.....	399	392	1.8
Wages.....	\$64,088	\$63,194	1.4
Miscellaneous expenses.....	\$556,577	\$462,534	20.3
Cost of materials used.....	\$4,207,655	\$3,110,137	35.3
Value of products.....	\$8,016,486	\$6,394,164	25.4
Producing spindles, number.....	39,530	42,600	17.2
Looms, number ¹	18,386	5,070	262.6
Cotton consumed, bales.....	6,676	7,213	17.4
Cotton consumed, pounds.....	3,362,434	3,640,878	17.6

¹ Decrease.

² Includes looms on tapes and other narrow goods (braiding machines) not fully reported in 1900.

The explanation of the diminution of the number of establishments is to be found in the peculiar characteristics of this industry. The products are of great variety and the materials used in any particular establishment are not in all cases uniform from year to year. It is to be noted that the number of establishments reported in New York in 1905 was only 3 as compared with 18 in 1900. That 1 was idle, 4 were out of business, and 5 could not be found is an indication of the transitory character of some of the manufacturing business of this class. The manufacture is undertaken in a small way to produce articles which are either novelties, or as to which the popular taste is capricious, and after a short time deficient capital, or faulty management, or the failure of the market causes the manufacture to cease. But, in addition to the 10 New York concerns which fell victims to these or some other calamities, there were others which either began the use of so much silk yarn that they have been transferred to silk goods, or which have changed their product and are now classed as manufacturers of other products. On the other hand there were some new establishments and, in spite of the disappearances mentioned and transfers, the industry as a whole shows a large expansion during the last five years. The capital has increased from

\$6,397,385 to \$8,010,491. In 1900 the average capital to each establishment reported was less than \$80,000; it is now more than \$104,000. But, as a matter of fact, there are a few large concerns and many small ones. The three which are left in New York have a capital of \$548,200, an average of \$182,733. The 26 in Rhode Island, which is the chief seat of the multiform industries classed under this head, had a capital of \$3,949,625, an average of \$151,909. If we eliminate these from the total there are left 48, with a capital of \$3,512,666, an average of only \$73,181.

The statistics of persons employed and of the wages paid offer no matter requiring comment other than that they exhibit the expansion of business which is discoverable in the facts relating to industries generally, and which is usual in a period of general prosperity.

The number of spindles and the consumption of cotton by them have both decreased, but spinning by such establishments is quite unusual, and the decrease is not more than would be the result of the discontinuance of this process by one small concern. Of the 39,530 spindles reported for the United States in the foregoing table, 36,280 were in Rhode Island, 1,000 in Connecticut, 250 in Pennsylvania, and 2,000 in other states. The number of looms in use shows a great nominal increase, by far the largest part of which arises from the inclusion at this census of braiding machines and similar machinery which were not fully reported in 1900.

Of the materials used, aside from 3,362,434 pounds of raw cotton, valued at \$390,805, by far the largest amount was cotton yarn purchased. The list of yarns, with the quantity and cost thereof, is as follows:

Yarns purchased: 1905.

KIND.	Pounds.	Cost.
Total.....	14,249,020	\$3,233,933
Cotton.....	13,816,858	3,009,717
Woolen.....	8,000	4,000
Worsted.....	21,173	15,780
Silk.....	23,924	98,617
Spun silk.....	19,090	58,624
Linen.....	224,200	17,260
Other.....	135,775	29,935

Ninety-seven per cent in weight of the yarn purchased and 93.1 per cent in value was cotton, in each case a higher proportion than was reported in 1900—a result which is in part due to the present classification of the products of some establishments as silk goods that were then included in this branch of the textile industry. It has been impossible to make any proper classification of products. The articles made are of great variety, and for most of them no state-

ment of quantity would be intelligible even to persons familiar with the trade. It is interesting to note that the reported value of products both in 1900 and in 1905 is almost exactly equal to the reported capital at the same time.

Table 24 presents a comparative summary for cotton small wares, by states, for 1900 and 1905.

Table 25 is a detailed summary for cotton small wares, by states, for the census of 1905.

Table 26 is a detailed summary of materials and products for the United States for the census of 1905. The kind, quantity, and value of materials and products can not be shown by states without disclosing the operations of individual establishments.

TABLE 24.—COTTON SMALL WARES—COMPARATIVE SUMMARY, BY STATES: 1905 AND 1900.

STATE.	Census.	Number of establishments.	Capital.	SALARIED OFFICIALS, CLERKS, ETC.		WAGE-EARNERS AND WAGES.				
				Number.	Salaries.	Total.		Average number.		
						Average number.	Wages.	Men 16 years and over.	Women 16 years and over.	Children under 16 years.
United States.....	1905	77	\$8,010,491	243	\$326,124	5,416	\$1,828,100	1,565	3,452	899
	1900	82	6,397,385	189	226,625	4,932	1,563,442	1,367	3,173	392
Massachusetts.....	1905	19	883,262	48	54,859	607	202,692	194	382	31
	1900	14	528,258	24	32,150	430	151,254	140	241	49
New York.....	1905	3	548,200	24	32,670	211	71,025	74	133	4
	1900	18	550,938	42	36,449	600	163,454	146	447	7
Pennsylvania.....	1905	21	2,169,151	64	84,684	1,474	487,587	340	978	156
	1900	24	1,945,844	50	64,620	1,444	454,947	337	1,001	106
Rhode Island.....	1905	26	3,949,625	85	129,639	2,841	1,000,006	848	1,857	136
	1900	16	2,876,699	48	67,924	2,209	735,888	650	1,379	180
All other states.....	¹ 1905	8	460,253	22	24,272	283	66,790	109	102	72
	² 1900	10	495,646	25	25,482	249	57,899	94	105	50

STATE.	Census.	MACHINERY.		Miscellaneous expenses.	Cost of materials used.	Value of products.
		Spindles (number).	Looms (number). ³			
United States.....	1905	39,530	18,386	\$556,577	\$4,207,655	\$8,016,486
	1900	42,600	5,070	462,534	3,110,137	6,394,164
Massachusetts.....	1905		5,506	54,737	500,864	897,533
	1900		302	31,754	321,007	646,848
New York.....	1905		894	22,136	242,125	416,000
	1900		192	34,497	460,876	840,017
Pennsylvania.....	1905	250	3,167	135,625	1,110,094	2,163,040
	1900		1,684	205,117	938,058	2,026,227
Rhode Island.....	1905	36,280	8,288	290,485	1,996,034	3,944,607
	1900	39,900	2,826	155,731	1,096,455	2,379,500
All other states.....	1905	3,000	531	53,594	358,538	595,306
	1900	2,700	66	35,435	293,741	501,572

¹ Includes establishments distributed as follows: Connecticut, 3; Georgia, 1; Illinois, 1; New Hampshire, 1; New Jersey, 1; Ohio, 1.

² Includes establishments distributed as follows: Connecticut, 2; Georgia, 1; Indiana, 1; New Jersey, 5; Ohio, 1.

³ Includes looms on tapes and other narrow goods (braiding machines), not fully reported in 1900.

TABLE 25.—COTTON SMALL WARES—DETAILED SUMMARY, BY STATES: 1905.

	United States.	Connecticut.	Massachu- setts.	New York.	Pennsylva- nia.	Rhode Island.	All other states. ¹
Number of establishments.....	77	3	19	3	21	26	5
Capital, total.....	\$8,010,491	\$69,772	\$883,262	\$548,200	\$2,169,151	\$3,949,625	\$390,481
Land.....	\$368,036	\$50	\$31,746	\$33,100	\$67,400	\$225,540	\$10,200
Buildings.....	\$1,248,089	\$300	\$118,912	\$112,900	\$147,250	\$822,129	\$46,598
Machinery, tools, and implements.....	\$2,859,913	\$41,749	\$412,540	\$166,200	\$714,615	\$1,350,183	\$174,626
Cash and sundries.....	\$3,534,453	\$27,673	\$320,064	\$236,000	\$1,239,886	\$1,551,773	\$159,057
Proprietors and firm members.....	65	1	13	1	27	13	10
Salaried officials, clerks, etc.:.....							
Total number.....	243	8	48	24	64	85	14
Total salaries.....	\$326,124	\$11,712	\$54,859	\$32,670	\$84,684	\$129,639	\$12,560
Officers of corporations—							
Number.....	59	4	14	5	15	17	4
Salaries.....	\$152,292	\$8,800	\$25,595	\$16,000	\$44,880	\$52,017	\$5,004
General superintendents, managers, clerks, etc.—							
Total number.....	184	4	34	19	49	68	10
Total salaries.....	\$173,832	\$2,912	\$29,264	\$16,670	\$39,804	\$77,622	\$7,560
Men—							
Number.....	145	2	29	16	34	55	9
Salaries.....	\$154,877	\$2,080	\$26,788	\$15,170	\$32,937	\$70,652	\$7,250
Women—							
Number.....	39	2	5	3	15	13	1
Salaries.....	\$18,955	\$832	\$2,476	\$1,500	\$6,867	\$6,970	\$310
Wage-earners, including pieceworkers, and total wages:							
Greatest number employed at any one time during the year...	6,020	44	689	251	1,599	3,143	294
Least number employed at any one time during the year.....	4,902	44	504	186	1,394	2,590	184
Average number.....	5,416	44	607	211	1,474	2,841	234
Total wages.....	\$1,828,100	\$15,800	\$202,692	\$71,025	\$487,587	\$1,000,006	\$50,990
Men 16 years and over—							
Average number.....	1,565	23	194	74	340	848	86
Wages.....	\$740,538	\$8,084	\$81,149	\$33,610	\$186,138	\$408,825	\$22,732
Women 16 years and over—							
Average number.....	3,452	21	382	133	978	1,857	81
Wages.....	\$1,023,474	\$7,716	\$115,291	\$36,665	\$276,900	\$587,526	\$19,376
Children under 16 years—							
Average number.....	399	.....	31	4	156	136	72
Wages.....	\$64,088	.....	\$6,252	\$750	\$24,549	\$23,655	\$8,882
Average number of wage-earners, including pieceworkers, em- ployed during each month:							
Men 16 years and over—							
January.....	1,590	23	197	70	337	893	70
February.....	1,598	23	198	80	337	888	72
March.....	1,605	23	200	86	341	883	72
April.....	1,570	23	197	79	345	850	76
May.....	1,554	23	196	80	343	837	75
June.....	1,540	23	191	77	343	828	78
July.....	1,521	23	190	71	322	834	81
August.....	1,548	23	190	73	333	834	95
September.....	1,557	23	187	68	335	840	104
October.....	1,537	23	190	71	348	802	103
November.....	1,577	23	196	65	349	840	104
December.....	1,583	23	196	68	347	847	102
Women 16 years and over—							
January.....	3,475	21	386	134	988	1,873	73
February.....	3,524	21	400	123	992	1,911	77
March.....	3,540	21	401	143	993	1,910	72
April.....	3,508	21	398	147	991	1,879	72
May.....	3,461	21	390	144	980	1,850	76
June.....	3,440	21	384	132	971	1,855	77
July.....	3,359	21	368	120	950	1,822	78
August.....	3,373	21	362	132	940	1,835	83
September.....	3,356	21	347	127	950	1,822	89
October.....	3,352	21	360	126	957	1,795	93
November.....	3,486	21	380	132	1,013	1,849	91
December.....	3,550	21	408	136	1,011	1,883	91
Children under 16 years.....							
January.....	376	.....	28	4	146	137	61
February.....	390	.....	30	4	147	145	64
March.....	402	.....	32	4	150	144	72
April.....	397	.....	32	4	151	134	76
May.....	393	.....	32	4	154	131	72
June.....	400	.....	32	4	154	135	75
July.....	397	.....	30	3	155	132	77
August.....	396	.....	31	4	154	132	75
September.....	407	.....	32	4	160	134	77
October.....	411	.....	32	4	166	135	74
November.....	408	.....	31	5	166	136	70
December.....	411	.....	30	4	169	137	71
Skilled operatives, average number:							
Spinners, mule—							
Men 16 years and over.....	3	1	.....	.....	2	.....	.....
Spinners, frame—							
Men 16 years and over.....	29	.....	.....	.....	.....	29	.....
Women 16 years and over.....	26	.....	.....	.....	.....	26	.....
Children under 16 years.....	16	.....	.....	.....	.....	6	10
Weavers—							
Men 16 years and over.....	747	.....	117	35	162	419	14
Women 16 years and over.....	1,906	.....	292	95	787	706	26
Children under 16 years.....	96	.....	.....	.....	44	52	.....
Machinery:							
Producing spindles (not including twisting and doubling spin- dles), number.....	39,530	1,000	.....	.....	250	36,280	2,000
Mule.....	1,250	1,000	.....	.....	250	.....	.....
Frame.....	38,280	.....	.....	.....	.....	36,280	2,000
Looms, number.....	18,386	7	5,506	894	3,167	8,288	524
On fancy weaves.....	108	.....	.....	.....	100	8	.....
On tapes and other narrow goods.....	18,267	7	5,506	894	3,056	8,280	524
On bags and other special fabrics.....	11	.....	.....	.....	11	.....	.....

¹ Includes establishments distributed as follows: Georgia, 1; Illinois, 1; New Hampshire, 1; New Jersey, 1; and Ohio, 1.

MANUFACTURES.

TABLE 25.—COTTON SMALL WARES—DETAILED SUMMARY, BY STATES: 1905—Continued.

	United States.	Connecticut.	Massachu- setts.	New York.	Pennsylva- nia.	Rhode Island.	All other states.
Miscellaneous expenses, total.....	\$556,577	\$7,385	\$54,737	\$22,136	\$135,625	\$290,485	\$46,209
Rent of works.....	\$61,048	\$2,148	\$8,655	.....	\$35,804	\$12,941	\$1,500
Taxes.....	\$36,816	\$220	\$6,581	\$2,136	\$2,641	\$24,300	\$938
Rent of offices, interest, insurance, and all other sundry ex- penses not hitherto included.....	\$380,704	\$4,417	\$31,663	\$20,000	\$92,845	\$188,008	\$43,771
Contract work.....	\$78,009	\$600	\$7,838	.....	\$4,335	\$65,236	.....
Materials used, aggregate cost.....	\$4,207,655	\$132,978	\$500,864	\$242,125	\$1,110,094	\$1,996,034	\$225,560
Principal materials, total cost.....	\$3,688,815	\$130,480	\$427,955	\$194,000	\$1,012,573	\$1,727,100	\$196,707
Purchased in raw state.....	\$390,805	.....	.....	.....	\$944	\$298,510	\$91,351
Purchased in partially manufactured form.....	\$3,298,010	\$130,480	\$427,955	\$194,000	\$1,011,629	\$1,428,590	\$105,356
Fuel.....	\$97,035	\$308	\$14,464	\$4,100	\$21,531	\$52,126	\$4,006
Rent of power and heat.....	\$25,195	.....	\$7,279	\$1,000	\$6,080	\$8,710	\$2,126
Mill supplies.....	\$36,683	\$100	\$6,908	\$625	\$7,871	\$19,834	\$1,345
All other materials.....	\$348,394	\$1,074	\$39,681	\$42,000	\$62,039	\$132,544	\$21,056
Freight.....	\$11,533	\$516	\$4,577	\$400	.....	\$5,720	\$320
Products, total value.....	\$8,016,486	\$186,229	\$897,533	\$416,000	\$2,163,040	\$3,944,607	\$409,077
Power:							
Number of establishments reporting.....	76	3	18	3	21	26	5
Total horsepower.....	7,805	339	1,177	350	1,111	4,322	506
Owned—							
Engines—							
Steam—							
Number.....	50	1	10	1	14	20	4
Horsepower.....	5,584	125	662	140	932	3,405	320
Gas and gasoline—							
Number.....	5	.....	1	1	2	1	.....
Horsepower.....	91	.....	36	10	20	25	.....
Water wheels—							
Number.....	16	2	5	.....	.....	6	3
Horsepower.....	1,039	210	309	.....	.....	420	100
Electric motors—							
Number.....	21	.....	.....	.....	3	18	.....
Horsepower.....	310	.....	.....	.....	70	240	.....
Other power, horsepower.....	4	4	.....	.....	.....	.....	.....
Rented—							
Electric motors—							
Number.....	27	.....	8	5	3	9	2
Horsepower.....	530	.....	153	200	28	74	75
Other kind, horsepower.....	247	.....	17	.....	61	158	11
Furnished to other establishments, horsepower.....	24	.....	2	.....	2	20	.....

TABLE 26.—COTTON SMALL WARES—DETAILED SUMMARY OF MATERIALS AND PRODUCTS, UNITED STATES TOTALS: 1905.

Materials used, total cost.....	\$4,207,655	Materials used—Continued.	
Cotton—		Rent of power and heat.....	\$25,195
Domestic, other than sea-island—		Mill supplies.....	\$36,683
Bales.....	6,676	All other materials.....	\$348,394
Pounds.....	3,362,434	Freight.....	\$11,533
Cost.....	\$390,805	Products, total value.....	\$8,016,486
Materials purchased in partially manufactured form—		Tape and webbing.....	\$4,010,942
Yarns—		Yarns for sale—	
Cotton—		Pounds.....	162,000
Pounds.....	13,816,858	Value.....	\$54,300
Cost.....	\$3,009,717	Waste for sale—	
Woolen—		Pounds.....	314,538
Pounds.....	8,000	Value.....	\$13,020
Cost.....	\$4,000	Other products of cotton, including twine.....	\$3,637,316
Worsted—		All other products.....	\$300,908
Pounds.....	21,173	Weight of products, pounds:	
Cost.....	\$15,780	Yarns spun and woven in mill.....	2,410,268
Silk—		Other products.....	845,810
Pounds.....	23,924	Amount of yarn produced, pounds:	
Cost.....	\$98,617	No. 20 and under.....	344,135
Spun silk—		No. 21 to 40, inclusive.....	2,066,133
Pounds.....	19,090	Bleaching, mercerizing, and dyeing:	
Cost.....	\$58,624	Bleached—	
Linen—		Yarn—	
Pounds.....	224,200	Pounds.....	1,522,450
Cost.....	\$17,260	Added value.....	\$28,440
Other yarns—		Cotton stock—	
Pounds.....	135,775	Pounds.....	10,000
Cost.....	\$29,935	Added value.....	\$300
Waste—		Mercerized—	
Pounds.....	156,000	Yarn—	
Cost.....	\$12,480	Pounds.....	189,600
Starch—		Added value.....	\$11,230
Pounds.....	606,813	Dyed—	
Cost.....	\$15,565	Yarn—	
Chemicals and dyestuffs.....	\$36,032	Pounds.....	513,900
Fuel.....	\$97,035	Added value.....	\$39,230

HOSIERY AND KNIT GOODS

HOSIERY AND KNIT GOODS.

By EDWARD STANWOOD, Expert Special Agent.

INTRODUCTION.

The invention of knitting machinery preceded that of the practical sewing machine by nearly three centuries. As long ago as 1589 William Lee, of Woodborough, Nottinghamshire, England, invented a knitting frame which was operated successfully and became an important feeder of the commerce of Great Britain. But it is only within comparatively recent times that the machinery has been so far improved that it can produce articles for wear of fine quality and elaborate construction at a cost within the means of all.

The hosiery and knit goods industry in this country is still more recent. It will be seen upon reference to Table 1 that in 1860 the value of the products of the 197 establishments then in operation was about \$7,000,000. Even so late as 1880 the value of knit goods produced was less than \$30,000,000, and the goods manufactured at that time were of the coarsest and cheapest varieties. Substantially all the knit goods of the better class were imported. In 1880 the value of cotton and woolen hosiery and knit goods imported was \$8,065,042, or more than one-fifth of the entire value of the machine made goods of this class consumed in this country. As the population of the country in 1880 was a little more than 50,000,000, it follows that 74 cents represented the average annual expenditure per capita for machine knit goods. At the census of 1905 the value of the domestic production was \$136,558,139. The importation of hosiery and knit goods amounted to \$7,131,230, and the official estimated population was 81,338,064, giving a corresponding per capita expenditure of \$1.77. Considering the great decrease in the cost of production and in the selling price, it is probably not making an exaggerated estimate to assert that the people of the United States purchased from three to four times as much machine knit apparel, in quantity, per capita as they did twenty-five years ago. The increase has been altogether in goods of American production, as the amount of foreign importation shows a decrease.

This is one of the most rapidly growing branches of the textile industry, and in some respects it is the most

interesting. The knitting industry is especially interesting in the constantly increasing variety of its products. The woman's knitted jacket this year may be a totally different article from that of last year in shape, in pattern of knitting, and in coloring. There are, of course, variations and changes in woven fabrics, but to a less extent than is the case with knit goods. "We are all designers," remarked a leading manufacturer. It is easy to see that the chance for variety is great, when it is known that in a large factory, in which hosiery and underwear are made, there are between forty and fifty different classes of help. New uses are constantly found for knit goods. Two illustrations may be given. Enormous quantities of knit fabrics are used for the lining of rubber shoes. A few years ago fire hose was made of leather, but it is now composed of knitted or braided cotton, lined with rubber. So, too, is a large amount of the smaller sizes of hose used for sprinkling lawns and for similar purposes.

RECENT HISTORY OF THE INDUSTRY.

Although the statistics show that there has been a great expansion of this industry during the last five years, it is not to be inferred therefrom that the experience of manufacturers has been one of uninterrupted prosperity, or that all branches have been simultaneously prosperous or depressed. When a trade is growing, by reason of an increasing demand, and when new establishments are being erected to supply that demand, it is natural that there should be active competition. Extraordinary fluctuations in the price of raw materials, too, have been witnessed during the period under review, and such violent changes keep manufacturers in a state of perplexity. Moreover, it is not correct to regard the knit goods industry as a single industry, for it is a class of industries. The wool branch may prosper at the expense of the cotton, or vice versa; and both cotton and wool must be subdivided into hosiery and underwear, the market for each of which is affected by special influences felt by it alone, so that it is impossible to argue from one to the other. Furthermore, after these subdivisions have been made there remain unclassified those establish-

ments which produce neither hosiery nor underwear, but some one or more of the remaining miscellaneous products. The extraordinary variety of products renders it difficult to narrate the market history of any period without going into minute details.

As a general statement it may be said that 1901, the year which followed that of the Twelfth Census, was not one of prosperity. During the greater part of the year the outlook was discouraging, but there was a distinct improvement toward the end of the year, save in cotton hosiery. In this branch there had been indications of severe competition, and during 1901 the rivalry became acute and the conditions were unfavorable throughout the year. It did not, however, reach its worst phase until afterward. Wool underwear, on the other hand, was not only in good request, but prices were firmly maintained. There was also a brisk market for cotton underwear, at a slight decline in the prices of some goods, and many mills were taxed to their utmost capacity to meet the demand. In the case of fleeced underwear sharp competition began in December, 1900. An attempt was made, by association and combination, to put an end to this condition, but it failed, and the demoralization became greater than ever. Later in the year large purchases steadied the market, and at the close of 1901 the outlook was very favorable. Stocks were cleaned up, prices had become firm, and profitable activity was anticipated.

Manufacturers were not disappointed in their expectation, for 1902 was a banner year for wool underwear, sweaters, and other articles for which a large market was created by the popularity of athletics. In cotton underwear a marked tendency was noted in the direction of better goods and a falling off in the demand for the cheaper. There was still sharp competition among the makers of fleeced underwear, and many

mills were for a time operated at a loss, but again there was an improvement late in the year. Both in underwear and hosiery a hindrance was felt in the sharp advance in the cost of cotton and cotton yarn. Yet the demand for hosiery was so great—larger than ever before—that although the year opened slowly, the general trade was excellent and the prospects as the year closed were promising—the price of the raw material alone causing doubt in the minds of manufacturers.

The year 1903 was again a good year for the woolen underwear trade, which was greatly helped by the high price of cotton and the consequent greater demand for woolen goods. So far as the cotton underwear trade was concerned, the year was one full of perplexity and hesitation, and the demand was further affected by the unusual lateness and coolness of the season. Cotton hosiery was affected by the same influences, and on the whole it may be said of 1903 that it was the most depressed season since 1899 for the entire cotton branch. Some manufacturers saved themselves from loss by producing lighter and cheaper goods.

Conditions were reversed for the wool underwear branch in 1904; the price of wool advanced greatly, with the result that the trade was less prosperous. The price of cotton was lower, but so irregular that the cotton branch did not profit greatly by the drop in the price of its raw material. Manufacturers were for a large part of the year uncertain as to the future of cotton, and their customers, being equally uncertain, refrained from purchasing freely. But toward the end of the year conditions improved, and the year, both for hosiery and underwear, was not altogether unsatisfactory.

Table 1 presents a comparative summary of the leading facts relating to the industry at the time of each census since 1860, with percentages of increase.

TABLE 1.—COMPARATIVE SUMMARY, WITH PER CENT OF INCREASE: 1860 TO 1905.

	CENSUS.						PER CENT OF INCREASE.				
	1905 ¹	1900	1890	1880	1870	1860	1900 to 1905	1890 to 1900	1880 to 1890	1870 to 1880	1860 to 1870
Number of establishments.....	1,079	921	796	359	248	197	17.2	15.7	121.7	44.8	25.9
Capital.....	\$106,663,531	\$81,860,604	\$50,607,738	\$15,579,591	\$10,931,260	\$4,035,510	30.3	61.8	224.8	42.5	170.9
Salaried officials, clerks, etc., number.....	4,304	2,809	21,621	(²)	(³)	(⁴)	53.2	73.3	.....	.....	.....
Salaries.....	\$4,436,941	\$3,124,798	\$1,685,153	(²)	(³)	(⁴)	42.0	85.4	.....	.....	.....
Wage-earners, average number.....	103,715	83,387	59,588	28,885	14,788	9,103	24.4	39.9	106.3	95.3	62.5
Total wages.....	\$31,536,024	\$24,358,627	\$16,578,119	\$6,701,475	\$4,429,085	\$1,661,972	29.5	46.9	147.4	51.3	166.5
Men 16 years and over.....	25,167	21,154	14,846	7,517	4,252	2,780	19.0	42.5	97.5	76.8	52.9
Wages.....	\$10,747,214	\$8,890,728	\$6,041,200	(²)	(³)	(⁴)	20.9	47.2	.....	.....	.....
Women 16 years and over.....	68,867	53,565	40,826	17,707	7,991	6,323	28.6	31.2	130.6	121.6	26.4
Wages.....	\$19,354,014	\$14,243,808	\$10,006,070	(²)	(³)	(⁴)	35.9	42.4	.....	.....	.....
Children under 16 years.....	9,681	8,668	3,916	3,661	2,545	(⁴)	11.7	121.3	7.0	43.9	.....
Wages.....	\$1,434,796	\$1,224,091	\$530,849	(²)	(³)	(⁴)	17.2	130.6	.....	.....	.....
Miscellaneous expenses.....	\$10,320,176	\$6,599,865	\$3,627,245	(²)	(³)	(⁴)	56.4	82.0	.....	.....	.....
Cost of materials used.....	\$76,593,782	\$51,071,859	\$35,861,585	\$15,210,951	\$9,835,823	\$3,202,317	50.0	42.4	135.8	54.6	207.1
Value of products.....	\$136,558,139	\$95,492,566	\$67,241,013	\$29,167,227	\$18,411,564	\$7,280,606	43.0	42.0	130.5	58.4	152.9

¹ Exclusive of the statistics of 5 establishments engaged primarily in the manufacture of other products. These establishments manufactured hosiery and knit goods to the value of \$1,579,633.

² Includes proprietors and firm members, with their salaries; number only reported in 1900 and 1905, but not included in this table.

³ Not reported separately.

⁴ Not reported.

A glance at the foregoing table reveals the remarkable fact that in all cases where the returns permit the comparison there has been an increase in every item of the account at every census period, until it has become one of the great branches of the textile industry. Unlike some of the other branches of the textile industry, the number of establishments engaged in knitting is increasing. The addition in the last five years amounts to 158 establishments, or 17.2 per cent.

DISTRIBUTION OF THE INDUSTRY.

In location the establishments manufacturing hosiery and knit goods are widely scattered. In 1905 establishments were reported in 35 states, as against 36 in 1900, but the change is without significance, as it is caused by the disappearance of 1 establishment in Texas and of 1 in Montana, against the introduction of 1 in Kentucky. Geographically, the establishments were located in 1905 and 1900 as follows:

	1905	1900
United States.....	1,079	921
New England states.....	132	133
Middle states.....	667	588
Southern states.....	119	71
Western states.....	161	129

More than three-fifths of the total number of establishments are still located in the 5 Middle states, and, as will be seen from Table 5, most of these are in Pennsylvania and New York, with 370 and 261, respectively. Of the entire increase in number, 158 for the whole country, 70 were in these 2 states, which for a long time have been and still are the leading ones. But the Southern and Western states have also increased largely.

One feature in connection with the distribution of the industry which deserves notice is that, so far as it has developed in the South and West, the manufacture is almost exclusively one of hosiery. Pennsylvania and New Jersey, also, are largely hosiery manufacturing states, whereas New York runs chiefly to underwear. Massachusetts, which is the third state in the number of establishments and in the amount of capital employed, produces both hosiery and underwear in large quantities.

CAPITAL.

The capital employed in this industry has increased by almost \$25,000,000 from 1900 to 1905. The particulars of this increase are exhibited in Table 2.

TABLE 2.—Capital, with per cent of increase: 1890 to 1905.

	CENSUS.			PER CENT OF INCREASE.	
	1905	1900	1890	1900 to 1905	1890 to 1900
Aggregate.....	\$106,663,531	\$81,860,604	\$50,607,738	30.3	61.8
Total fixed capital.....	49,632,183	36,960,919	23,574,761	34.3	56.8
Land.....	3,828,321	3,367,762	2,271,466	13.7	48.3
Buildings.....	13,713,924	9,556,726	6,194,088	43.5	54.3
Machinery, tools, and implements.....	32,089,938	24,036,431	15,109,207	33.5	59.1
Cash and sundries.....	57,031,348	44,899,685	27,032,977	27.0	66.1

The distribution of capital presents some interesting features. Naturally the largest amount is credited to the Middle states. This division reported \$61,902,230 in 1905 out of a total for the United States of \$106,663,531, or 58 per cent; New England, \$20,070,600, or 18.8 per cent; the Southern states, \$7,980,684, or 7.5 per cent; and the Western states, \$16,710,017, or 15.7 per cent. Although there are many great establishments in the Middle states, the average capital of those in New England is the greatest, about \$152,000, against an average of \$92,800 in the Middle states, \$67,000 in the Southern states, and \$103,800 in the Western states.

WAGE-EARNERS AND WAGES.

The number of wage-earners shows a numerical increase of 20,328, which was 24.4 per cent of the number reported in 1900. The largest increase was in the number of women employed. The following tabular statement shows the percentage of men, women, and children reported at each of the last three censuses:

WAGE-EARNERS.	1905	1900	1890
Men.....	24.3	25.4	24.9
Women.....	66.4	64.2	68.5
Children.....	9.3	10.4	6.6

The changes are not particularly significant. It is due largely to the extension of this industry in the South that the proportion of women shows a tendency to increase, and that the decrease in the proportion of children employed is so small. In a new manufacturing region employers are compelled to take such help as they are able to procure, whereas in the large centers they have a more extensive labor market to draw upon.

MACHINERY.

In the matter of machinery, the knitting industry is especially worthy of study. The spindle is necessary to prepare yarn for either weaving or knitting, but there is hardly any comparison between the simplicity of the loom—even such looms as are at work upon the most elaborate fabrics—and the complexity of the knitting machine. Indeed, it is hardly accurate to use the singular number in referring to the knitting machine. In the weaving industry looms are different from one another, but only one loom is required to produce a single fabric. On the other hand, when in the tables of machinery appended to this report, or in statements of capacity of knitting mills, the number of knitting machines is specified, it would be more correct to specify the number of sets of such machines, since it is necessary in some cases to operate five different machines to produce a single garment. Moreover, the necessity that is upon cotton manufacturers to send machinery to the scrap heap and replace it with improved spindles and looms, if they are to have efficient and up-to-date factories, is felt even more keenly by manufacturers of knit goods. Modifications and improvements of machinery are frequent and important, and it is necessary at brief intervals to take out machines that have had but little wear in order to introduce better ones. The patents upon knitting machinery are in a confused state. Some manufacturers, who have hit upon a fresh idea, do not take out patents, but operate their new machines secretly, in order to avoid infringement by rival manufacturers who might accomplish a like result by different means.

The typical machine of this industry is of course the knitting machine, of which there are many varieties. It is supplemented by sewing machines, of which there is more than one to every three knitting machines. In establishments that produce woolen or merino goods, carding and combing machinery is employed; a limited number of mills also prepare their own yarn, and consequently employ spindles as a part of their plant equipment.

Cards.—The number of woolen cards now reported is but 927 as compared with 1,161 in 1900. As at the last census the cards are concentrated for the most part in 2 states—491 in New York and 109 in Connecticut (600 in the two) against 674 in New York and 134 in Connecticut (808 in the two) in 1900. In addition to the woolen cards there are now reported 24 sets of worsted, 50 of shoddy, and 1,000 of cotton cards, the number of which was not reported in 1900. The particulars of the width of these carding machines present nothing worthy of comment. So far as the woolen cards are concerned they may be regarded as a legitimate addition to the wool industry.

Combing machines.—The number of combing machines shows a large relative increase. Only 15

were reported in 1900, and the present number is 224, of which 51 were of American and 173 of foreign manufacture; all but 32 of the whole number are reported in 2 states—120 in Massachusetts and 72 in New York.

Spindles.—The number of producing spindles reported is 596,362. The classification and comparison with the numbers reported in 1900 is as follows:

	1905	1900
Total.....	596,362	510,172
Cotton spindles.....	300,037	205,742
Woolen spindles.....	286,661	290,366
Worsted spindles.....	9,664	14,064

The number of woolen spindles has remained nearly stationary; whereas there has been an increase of nearly 100,000 cotton spindles, due to the enlargement of some of the important mills in the Eastern states and the introduction of the industry in the South. But after all spinning is not a usual process in knitting mills. Only 170 of the 1,079 knitting mills in the country report spindles, either woolen or cotton, as a part of their plant; from which it appears that 84.2 per cent of the establishments purchase all their yarn. Moreover, most of the mills which operate spindles employ but a very small number. Two mills in Massachusetts and 4 in Connecticut have an aggregate of 165,420 of the 596,362 spindles reported, or 27.7 per cent of the whole. As shown in the following tabular statement, 33 selected mills, a little more than 3 per cent of the whole number, have 355,445 spindles, or 59.6 per cent of all in the country:

Spindle equipment—selected states and mills: 1905.

STATE.	NUMBER OF MILLS.			SELECTED MILLS.	
	Total.	Report- ing no spindles.	Report- ing spindles.	Number.	Number of spindles.
Total.....	830	707	123	33	355,445
Connecticut.....	24	8	16	4	62,532
Massachusetts.....	58	48	10	2	102,888
Michigan.....	38	32	6	1	10,000
New York.....	261	186	75	20	133,811
New Jersey.....	25	24	1	1	9,462
North Carolina.....	40	38	2	1	11,248
Pennsylvania.....	370	359	11	2	13,600
South Carolina.....	14	12	2	2	11,904

In these 8 states, which contain almost four-fifths of the number of establishments in the country, only 123 out of 830 establishments report spindles, and one-fourth of this number report 59.6 per cent of all the spindles. In the Southern states there are 119 knitting mills, only 15 of which report spindles to an aggregate of 50,728, or an average of 3,382 to a mill. In the West only 24 of the 161 mills report spindles to the number of 43,675, or 1,820 to a mill.

Knitting machines.—The number and classification of knitting machines in 1900 and 1905 is shown by the

tabular statement which follows. It should be understood that the actual number of knitting machines is larger than that stated below, inasmuch as the important machines only are counted. For whereas but one machine is required, ordinarily, for knitting hose, several machines are needed to produce a single article of some classes of underwear. The number stated is, therefore, in the case of underwear, the number of body machines, and those which are used to knit sleeves, wrists, ankles, and other parts of the garments are not counted.

Knitting machines: 1905 and 1900.

KIND.	1905 (number).	1900 (number).
Total.....	88,374	1 69,047
Spring-beard needle:		
Flat, ribbed.....	1,455	1,691
Flat, plain.....	756	1,432
Full-fashioned flat, ribbed.....	260	65
Full-fashioned flat, plain.....	1,195	1,069
Circular, ribbed.....	1,087	1,467
Circular, plain.....	7,163	6,753
Circular hosiery, automatic.....	1,648	1,700
Lamb and other variety, hand.....	335	336
Latch needle:		
Flat, ribbed.....	2,343	1,655
Flat, plain.....	2,410	1,936
Full-fashioned flat, ribbed.....	770	358
Full-fashioned flat, plain.....	1,317	869
Circular, ribbed.....	24,452	17,490
Circular, plain.....	6,707	6,760
Circular hosiery, automatic.....	30,313	119,993
Lamb and other variety, hand.....	6,163	5,473

¹ This number is 20,000 less than the total published at the Twelfth Census. The error was due to a misinterpretation of the schedule.

The total number of knitting machines reported is 88,374 against 69,047 in 1900. The number of spring-beard needle machines is 13,899; the corresponding number in 1900 was 14,513. There has thus been a decrease of 614 in the number of that form of machine. Of latch-needle machines, there are 74,475 against 54,534 in 1900, an increase of 19,941, or 36.6 per cent. The net increase in the number of all machines is 19,327, or 28 per cent. The relatively large increase of latch-needle machines is a result of the expansion of the hosiery branch of the industry, for which the latch needle is better adapted.

Owing to the difference in raw material used, the variety of goods produced by knitting mills, and the difference in production by different machines, the number of knitting machines bears no definite relation to the capital employed, to the number of wage-earners, or to the value of the product. Thus New York, which reports 33 per cent of the total capital, 28.2 per cent of the wage-earners, and 33.8 per cent of the gross value of product, had but 14.3 per cent of the knitting machines. On the other hand, Pennsylvania, with 22.4 per cent of the capital, 27.1 per cent of the wage-earners, and 22.5 per cent of the product, had 38.3 per cent of the knitting machines. These facts serve to show the impossibility of drawing general deductions from aggregates when dealing with an

industry so diverse in itself as the manufacture of knit goods.

Sewing machines.—The total number of sewing machines now reported in use is 30,410, compared with 24,535 in 1900.

MATERIALS USED.

Table 3 is a comparative table, which shows the kind, quantity, and cost of materials used in 1890, 1900, and 1905.

TABLE 3.—*Materials used, by kind, quantity, and cost: 1890 to 1905.*

KIND.	1905	1900	1890
Total cost.....	\$76,593,782	\$51,071,859	\$35,861,585
Wool, foreign and domestic, in condition purchased:			
Pounds.....	17,300,616	17,953,907	21,639,393
Cost.....	\$6,153,858	\$5,262,135	\$8,254,418
Raw cotton:			
Pounds.....	50,586,760	49,451,301	32,432,617
Cost.....	\$5,869,317	\$3,561,592	\$3,712,215
Mohair:			
Pounds.....	82,502	631,199	169
Cost.....	\$52,252	\$44,953	\$87
Woolen yarn:			
Pounds.....	4,839,343	2,621,893	6,386,370
Cost.....	\$2,798,454	\$1,257,587	\$3,791,497
Worsted yarn:			
Pounds.....	8,788,570	5,823,215	4,146,035
Cost.....	\$7,457,690	\$4,865,304	\$4,279,105
Merino yarn:			
Pounds.....	2,568,890	1,981,484	(¹)
Cost.....	\$1,118,999	\$642,535	(¹)
Cotton yarn:			
Pounds.....	161,500,466	131,820,068	32,248,849
Cost.....	\$34,372,910	\$22,204,918	\$7,588,973
Linen yarn:			
Pounds.....	55,392	71,478	301,695
Cost.....	\$54,362	\$53,588	\$65,335
Silk and spun silk yarn:			
Pounds.....	320,671	266,247	120,341
Cost.....	\$1,200,259	\$946,801	\$600,315
Yarn of jute, ramie, and other vegetable fiber:			
Pounds.....	7,225	44,682	(¹)
Cost.....	\$1,862	\$57,677	(¹)
Shoddy, purchased:			
Pounds.....	7,489,358	3,770,626	4,735,144
Cost.....	\$923,719	\$488,792	\$878,948
Wool waste and noils:			
Pounds.....	6,020,459	5,276,454	5,503,286
Cost.....	\$1,711,669	\$1,487,907	\$2,021,492
All other materials, cost.....	\$14,878,431	\$10,198,070	\$4,669,200

¹ Not reported separately.

In value the materials used were 50 per cent more than in 1900, and more than double the value in 1890. The statement of quantities shows the change that is taking place in this industry. The raw wool purchased at the census of 1905 was more than 4,000,000 pounds less than was consumed by the establishments reporting in 1890, and about 650,000 pounds less than was consumed in 1900. On the other hand, the aggregate of woolen and worsted yarn is more than 5,000,000 pounds greater than the aggregate of the same items for 1900. The purchases of raw cotton in 1905 amounted to a little more than 1,000,000 pounds in excess of that reported in 1900, but the purchases of cotton yarn were almost 30,000,000 pounds more. In 1890 the weights of raw cotton and of cotton yarn purchased are represented by substantially identical figures. In 1900 the weight of cotton yarn was more than two and a half times that of raw cotton. In 1905 the cotton yarn was nearly three and one-fifth times as much in weight as the raw cotton. It is evident

from this, as it is from other facts disclosed by the returns, that the industry is following more and more the English system of separating spinning from what is technically known in Great Britain as manufacturing.

Another fact which has been dwelt upon in former reports, and which has now led to the complete separation of the hosiery and knit goods industry from the wool manufacture, is the sluggish growth of the wool department as compared with the rapid increase of the use of cotton for hosiery and underwear. The gross weight of raw wool, mohair, shoddy, wool waste and noils, and woolen, worsted, and merino yarn, was 42,410,397 pounds in 1890, 38,058,778 pounds in 1900, and 47,090,738 pounds in 1905. It was nearly 5,000,000 pounds more than in 1890, and but 9,000,000 pounds more than in 1900. The combined weight of raw cotton and cotton yarn was 64,681,466 pounds in 1890, 181,271,369 pounds in 1900, and 212,087,226 pounds in 1905. The increase for 1905 was more than 147,000,000 pounds over 1890, and nearly 31,000,000 pounds over 1900. Although it is unscientific to lump together raw fiber and yarn, yet by so doing in this case an indisputable fact is brought out, namely, that the use of wool in the manufacture of the goods of these establishments is relatively declining. The showing would be even more emphatic if we were to eliminate the large and increasing amount of knit goods which are neither hosiery nor underwear, but are outer garments, like sweaters and similar articles.

PRODUCTS.

The kind, quantity, and value of the products of knitting mills in 1890, 1900, and 1905, together with the rate of increase of each item showing quantity and value, from 1890 to 1900, and from 1900 to 1905, are presented in Table 4.

TABLE 4.—*Products, by kind, quantity, and value, with per cent of increase: 1890 to 1905.*

KIND.	CENSUS.			PER CENT OF INCREASE.	
	1905	1900	1890	1900 to 1905	1890 to 1900
Aggregate value..	\$136,558,139	\$95,482,566	\$67,241,013	43.0	42.0
Total value.....	\$127,531,232	\$88,445,299	\$61,161,035	44.2	44.6
Cotton, merino, and all-wool half hose:					
Dozen pairs.....	18,144,185	13,249,558	7,078,505	36.9	87.2
Value.....	\$17,438,914	\$11,030,244	\$7,434,131	59.1	48.4
Cotton, merino, and all-wool hose:					
Dozen pairs.....	25,999,813	16,641,769	10,062,886	56.2	65.4
Value.....	\$26,152,043	\$16,203,372	\$11,728,075	61.4	38.2
Cotton, merino, and all-wool shirts and drawers:					
Dozens.....	19,707,096	15,818,893	6,862,157	24.6	130.5
Value.....	\$56,338,450	\$45,157,549	\$32,961,997	24.8	37.0
Cotton, merino, and all-wool combination suits:					
Dozens.....	1,433,610	974,127	(¹)	47.2	.....
Value.....	\$6,643,745	\$3,575,561	(¹)	85.8	.....

¹ Not reported separately.

TABLE 4.—*Products, by kind, quantity, and value, with per cent of increase: 1890 to 1905.—Continued.*

KIND.	CENSUS.			PER CENT OF INCREASE.	
	1905	1900	1890	1900 to 1905	1890 to 1900
Leggings and gaiters:					
Dozen pairs.....	122,462	71,038	25,072	72.4	183.3
Value.....	\$619,998	\$248,523	\$85,401	149.5	191.0
Gloves and mittens:					
Dozen pairs.....	2,260,508	1,898,587	896,150	19.1	111.8
Value.....	\$5,556,260	\$4,244,046	\$1,935,080	30.9	119.3
Hoods, scarfs, nubias, etc.:					
Dozens.....	589,315	343,429	342,497	71.6	0.3
Value.....	\$1,774,862	\$1,002,392	\$1,476,430	77.1	132.1
Cardigan jackets, sweaters, fancy jackets, etc.:					
Dozens.....	811,629	594,090	361,478	36.6	64.4
Value.....	\$8,345,369	\$3,498,837	\$3,576,248	138.5	12.2
Shawls:					
Dozens.....	435,306	157,622	22,990	176.2	585.6
Value.....	\$1,293,348	\$328,720	\$115,467	293.4	184.7
Fancy knit goods, wristers, etc.:					
Dozens.....	582,275	284,685	270,533	104.5	5.2
Value.....	\$2,118,842	\$951,052	\$759,648	122.8	25.2
Boot and shoe linings:					
Square yards.....	11,768,961	10,406,440	7,596,711	13.1	37.0
Value.....	\$1,249,401	\$2,205,003	\$1,088,558	143.3	102.6
Jersey cloth and stockinet:					
Square yards.....	3,354,026	4,488,911	3,065,057	125.3	46.5
Value.....	\$1,145,127	\$1,305,376	\$2,157,692	112.3	139.5
Total value of all partially manufactured products.....	\$1,000,083	\$530,057	\$675,211	88.7	121.5
All-wool and merino yarns:					
Pounds.....	258,690	83,327	852,180	210.5	190.2
Value.....	\$115,013	\$40,387	\$472,703	184.8	191.5
Worsted yarn:					
Pounds.....	232,869	51,202	17,000	354.8	201.2
Value.....	\$230,836	\$36,303	\$13,642	535.9	166.1
Cotton yarn:					
Pounds.....	3,304,615	2,419,282	500,000	36.6	383.9
Value.....	\$654,234	\$422,100	\$150,000	55.0	181.4
Wool rolls, noils, waste, and all other partly manufactured products:					
Pounds.....	.....	385,863	(²)	.....	.....
Value.....	(²)	\$31,267	\$38,866	.....	19.6
All other products.....	\$6,673,530	\$4,927,903	\$3,183,950	35.4	54.8
Contract work.....	\$208,167	\$273,931	\$63,125	124.0	334.0

¹ Decrease.

² Not reported.

³ Included in "all other products."

In addition to the total value of products (\$136,558,139) reported by establishments classified as hosiery and knit goods in 1905, considerable quantities of knit goods were made in other mills. The value of such goods was as follows: Reported by cotton manufacturers, \$1,356,123; by other than textile mills, \$223,510; total, \$1,579,633, or an aggregate of \$138,137,772.

Few of the items in the above table show a decrease; the most of them indicate a large increase. The aggregate number of hose and half hose, including 42,065 dozen pairs of silk hose, in 1905, and 12,572 dozen pairs in 1900, was 44,186,063 dozen pairs in 1905, and 29,903,899 dozen pairs in 1900, an increase of 47.8 per cent. The product in 1905 reached the prodigious number of 530,232,756 pairs of hose and half hose. Classified by the material of which the hosiery was composed the showing for 1900 and 1905 is as follows:

Hosiery manufactured: 1905 and 1900.

KIND.	1905 (dozen pairs).	1900 (dozen pairs).
Total.....	44,186,063	29,903,899
Cotton half hose.....	15,223,243	11,352,081
Cotton hose.....	24,169,804	15,028,173
Merino half hose.....	1,611,066	957,520
Merino hose.....	746,226	436,891
Woolen half hose.....	1,309,876	939,957
Woolen hose.....	1,083,783	1,176,705
Silk hose.....	42,065	12,572

The rate of progress in the underwear branch of this industry has also been satisfactory. The total number of shirts, drawers, and combination suits manufactured in 1905 was 21,163,561 dozens, as compared with 16,860,555 dozens in 1900, an increase of 25.5 per cent. The underwear production in detail, grouped according to materials, is shown in the subjoined tabular statement:

Underwear manufactured: 1905 and 1900.

KIND.	1905 (dozens).	1900 (dozens).
Total.....	21,163,561	16,860,555
Cotton shirts and drawers.....	17,107,958	12,058,431
Cotton combination suits.....	1,260,301	824,632
Merino shirts and drawers.....	2,113,810	2,675,416
Merino combination suits.....	105,242	139,994
Wool shirts and drawers.....	485,328	1,085,046
Wool combination suits.....	68,067	9,501
Silk or silk mixed shirts and drawers.....	16,045	54,807
Silk or silk mixed combination suits.....	6,810	12,728

Assuming that the shirts and drawers were equal in number, and treating the combination suit as the equivalent of both, the knitting mills produced more than 135,600,000 sets of underwear during the census year 1905.

Hosiery and knit underwear, including silk goods, not stated separately in the above general table of products, account for \$107,551,067, or 78.8 per cent of the total value (\$136,558,139) of the products of knitting mills. The facts regarding the increase of the great variety of other articles of wear, but not of underwear, such as shawls, jackets, sweaters, gloves, mittens, and many others, can be drawn from Tables 4 and 7.

Table 5, which follows, is a comparative summary of the hosiery and knit goods industry, by states and geographic divisions, as reported at each census from 1860 to 1905.

Table 6 presents totals by states for each principal item of the schedule of inquiry as reported at the census of 1905.

Table 7 is a detailed summary of materials and products for the United States as reported at the census of 1905. The kind, quantity, and value of materials and products can not be shown by states without disclosing the operations of individual establishments.

MANUFACTURES.

TABLE 5.—HOSIERY AND KNIT GOODS—COMPARATIVE SUMMARY, BY

	STATE.	Census.	Number of establishments.	Capital.	SALARIED OFFICIALS, CLERKS, ETC.		WAGE-EARNERS AND WAGES.					MACHINERY.				
					Number.	Salaries.	Total.		Average number.			Woolen cards.	Combining machines.	Knitting machines.	Sewing machines.	Spindles.
							Average number.	Wages.	Men 16 years and over.	Women 16 years and over.	Children under 16 years.					
1	United States.....	1905	1,079	\$106,663,531	4,304	\$4,436,941	103,715	\$31,536,024	25,167	68,867	9,681	927	224	88,374	30,410	603,180
2		1900	921	81,860,604	2,809	3,124,798	83,387	24,358,627	21,154	53,565	8,668	1,161	15	69,047	24,535	521,871
3		1890	796	50,607,738	1,621	1,685,153	59,588	16,578,119	14,816	40,826	3,916	1,183	16	36,327	(*)	389,353
4		1880	359	15,579,591	(*)	(*)	28,885	6,701,475	7,517	17,707	3,661	592	3	12,659	4,569	143,023
5		1870	248	10,931,260	(*)	(*)	14,788	4,429,085	4,252	7,991	2,545	519	(*)	5,625	1,668	148,385
6		1860	197	4,035,510	(*)	(*)	9,103	1,661,972	2,780	6,323	(*)	(*)	(*)	(*)	(*)	(*)
7	New England states....	1905	132	20,070,600	543	714,299	17,187	6,040,319	4,979	11,473	735	240	130	13,737	4,342	243,892
8		1900	133	19,014,126	415	559,311	15,074	4,879,179	4,340	9,941	793	297	15	12,860	4,004	233,253
9		1890	168	14,538,511	295	315,455	13,208	4,029,429	3,553	9,188	467	329	9	8,638		147,825
10		1880	103	5,156,306			7,818	1,918,715	2,130	4,969	719	207		2,626	816	46,047
11		1870	84	4,021,660			5,280	1,808,335	1,678	3,059	543	236		2,466	760	82,656
12		1860	47	1,534,700			2,165	487,440	815	1,350						
13	Maine.....	1905	3	15,500			56	12,975	10	44	2				78	6
14		1900	3	9,000			37	7,425	4	31	2				126	3
15		1890	4	28,095	3	1,950	257	28,215	5	252					91	
16		1880	1	500			21	801	1	20						
17	New Hampshire.....	1905	21	2,749,589	89	91,570	2,790	943,120	940	1,791	59	54		2,719	335	18,433
18		1900	22	2,525,286	51	58,011	2,492	790,558	890	1,514	88	71		3,174	348	26,867
19		1890	37	2,706,065	57	57,611	3,121	931,519	1,008	2,037	76	112		3,052		36,526
20		1880	24	1,224,000			1,753	536,117	540	1,098	115	68		992	118	17,540
21		1870	28	855,460			1,081	405,003	344	624	113	58		832	102	17,175
22		1860	12	133,000			488	76,188	138	350						
23	Vermont.....	1905	11	1,387,526	36	41,950	916	366,340	316	590	10	32		498	397	8,449
24		1900	14	1,589,786	32	42,024	1,041	389,667	387	651	3	40		633	494	11,076
25		1890	10	754,882	13	13,759	705	256,085	262	438	5	37		221		9,584
26		1880	0	492,000			383	101,037	138	227	18	22		69	94	3,805
27		1870	7	303,000			331	90,179	89	216	26	23		49	53	26,300
28		1860	2	21,500			93	15,792	30	63						
29	Massachusetts.....	1905	58	7,826,240	244	317,784	8,110	2,839,185	2,093	5,498	519	39	120	6,715	2,518	125,406
30		1900	54	6,288,672	166	212,753	6,667	2,091,238	1,658	4,549	460	39	3	5,003	1,855	108,938
31		1890	74	4,497,940	113	102,630	4,562	1,392,630	1,025	3,407	130	52		3,344		40,822
32		1880	57	1,467,375			3,411	608,067	786	2,413	212	38		813	257	9,028
33		1870	32	1,570,500			2,415	848,864	844	1,404	167	79		1,116	312	19,331
34		1860	15	155,200			388	94,692	166	222						
35	Rhode Island.....	1905	15	2,276,874	72	100,216	1,721	573,680	472	1,176	73	6	3	1,170	342	4,652
36		1900	15	2,452,044	65	87,223	1,594	469,193	435	1,015	144	10	3	1,262	316	6,836
37		1890	16	1,728,618	34	33,671	1,504	453,679	332	1,023	149	14	2	755		15,825
38		1880	1	6,000			39	8,400	6	24	9			32	7	
39		1870	3	133,000			120	33,200	37	64	19	6		33		1,800
40	Connecticut.....	1905	24	5,814,871	102	162,779	3,594	1,305,019	1,148	2,374	72	109	7	2,557	744	86,952
41		1900	25	6,149,338	101	159,300	3,243	1,131,078	966	2,181	96	134	9	2,662	988	79,536
42		1890	27	4,822,911	75	105,834	3,059	967,301	921	2,031	107	114	7	1,195		45,068
43		1880	14	1,966,451			2,211	664,293	659	1,187	365	79		720	340	15,674
44		1870	14	1,159,700			1,333	431,085	364	751	218	70		436	293	18,050
45		1860	18	1,225,000			1,196	306,768	481	715						
46	Middle states.....	1905	667	61,902,230	2,583	2,453,035	60,335	18,907,004	14,629	40,246	5,460	549	89	49,239	21,150	261,639
47		1900	588	48,531,122	1,601	1,671,494	51,115	15,479,447	12,799	32,979	5,337	731		40,407	17,592	231,594
48		1890	460	30,231,762	1,003	1,029,180	36,820	10,544,998	9,767	24,076	2,777	779	7	20,838		213,023
49		1880	190	9,883,486			18,201	4,451,850	5,046	10,645	2,510	378	3	8,423	3,681	95,316
50		1870	141	6,873,300			9,365	2,596,360	2,524	4,843	1,998	282		3,091	906	65,717
51		1860	134	2,476,210			6,888	1,160,624	1,928	4,960						
52	New York.....	1905	261	35,206,059	1,084	1,271,398	29,251	10,144,087	9,068	19,421	762	491	72	12,666	14,695	226,343
53		1900	242	30,203,640	805	930,764	26,470	8,964,097	8,327	17,219	924	674		11,666	12,282	191,582
54		1890	201	19,608,331	471	511,739	19,828	5,925,569	6,413	12,590	825	701	4	5,434		186,057
55		1880	75	5,334,876			7,858	2,036,076	2,389	4,470	999	320		1,311	1,953	71,008
56		1870	60	3,318,700			3,741	1,122,890	1,061	1,899	781	230		746	620	49,441
57		1860	22	1,102,500			2,701	392,924	597	2,104						
58	New Jersey.....	1905	25	1,934,489	56	67,167	1,742	535,821	592	1,077	73	26		1,345	333	9,462
59		1900	16	1,973,482	61	73,043	1,841	446,608	602	1,087	152	26		1,335	382	8,408
60		1890	15	1,352,143	27	30,036	1,250	312,564	373	760	117	33		694		9,548
61		1880	8	804,570			1,070	239,761	320	604	146	23		343	75	6,048
62		1870	4	575,500			722	193,200	136	271	315	13		11	138	6,480
63		1860	7	477,200			1,491	225,060	329	1,162						
64	Pennsylvania.....	1905	370	23,909,720	1,377	1,066,986	28,143	7,956,087	4,758	18,875	4,510	32	13	33,816	5,860	25,834
65		1900	319	15,743,981	688	638,483	21,540	5,825,783	3,725	13,739	4,076	31		26,120	4,612	31,604
66		1890	236	9,121,632	488	470,455	15,453	4,262,299	3,159	10,524	1,770	45	3	14,492		17,418
67		1880	106	3,743,790			9,272	2,175,913	2,337	5,570	1,365	35	3	6,769	1,653	18,260
68		1870	76	2,979,000			4,899	1,280,270	1,325	2,672	902	39		2,332	148	9,796
69		1860	103	895,460			2,692	541,116	993	1,694						
70	Delaware.....	1905	7	212,802	27	18,374	323	75,087	30	261	32		4	598	139	
71		1900	7	298,511	19	14,686	582	123,103	85	408	89			674	246	
72	Maryland.....	1905	4	639,160	39	29,110	876	195,922	181	612	83			814	123	
73		1900	4	311,508	28	14,518	682	119,456	60	526	96			612	70	
74		1890	8	149,656	17	1										

¹ Includes proprietors and firm members, with their salaries; number only reported in 1900 and 1905, but not included in this table.

² Not reported.

³ Not reported separately.

HOSIERY AND KNIT GOODS.

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STATES AND GEOGRAPHIC DIVISIONS: 1860 TO 1905.

PRINCIPAL MATERIALS—QUANTITIES CONSUMED.											
Miscellaneous expenses.	Cost of materials used.	Raw cotton (pounds).	Wool in condition purchased.			Animal hair and noils, purchased (pounds).	Shoddy, purchased (pounds).	Yarns purchased.		Value of products.	
			Total (pounds).	Foreign (pounds).	Domestic (pounds).			Cotton (pounds).	Woolen, worsted, and merino (pounds).		
\$10,320,176	\$76,593,782	50,586,760	17,300,616	1,130,433	16,170,183	254,525	7,489,358	161,500,466	16,197,803	\$136,558,139	1
6,599,865	51,071,859	49,451,301	17,953,907	3,446,838	14,507,069	1,093,854	3,770,626	131,820,068	10,426,592	95,482,566	2
3,627,245	35,861,585	32,432,617	21,639,393	2,734,304	18,905,089	424,496	4,735,144	32,248,849	10,532,405	67,241,013	3
(2)	15,210,951	20,131,151	8,594,895	448,758	8,146,137	66,929	1,523,263	8,354,087	4,571,382	29,167,227	4
(2)	9,835,823	11,463,503	5,596,955	292,300	5,304,655	(3)	189,857	2,188,722	2,229,777	18,411,564	5
(2)	3,202,317	3,892,342	2,927,626	(5)	(5)	(5)	(5)	(5)	(5)	7,280,606	6
2,072,774	13,576,121	17,395,722	5,363,383	540,286	4,823,097	32,000	1,743,473	14,102,617	3,105,520	24,794,934	7
1,114,174	9,325,415	15,764,490	5,716,400	1,408,206	4,308,254	93,741	922,558	10,825,182	2,079,393	17,834,673	8
929,336	8,661,685	7,275,949	8,398,430	1,035,183	7,363,253	128,525	1,081,598	4,938,560	1,890,047	16,034,801	9
	4,034,873	3,338,544	4,348,024	209,440	4,138,584	26,779	366,843	639,320	781,187	7,912,916	10
	3,282,123	3,432,064	2,483,733	141,500	2,342,233		10,000	601,879	315,419	6,910,797	11
	1,092,358	1,693,001	1,457,260							2,374,242	12
615	17,720								28,000	34,000	13
6,389	10,670								18,000	29,075	14
1,019	33,839							6,000	41,395	76,603	15
	1,500								2,000	3,000	16
375,780	2,229,132	1,936,848	803,633		803,633		813,849	2,874,555	641,408	3,974,290	17
175,118	1,319,170	1,942,884	820,271	109,163	711,108		668,821	1,230,881	416,246	2,592,829	18
241,201	1,777,595	728,130	3,456,174	243,850	3,212,324	4,200	960,998	113,609	203,136	3,481,922	19
	1,249,600	1,002,798	1,756,332	76,000	1,680,332	5,000	186,900	99,486	99,000	2,362,779	20
	881,646	905,500	880,750	40,500	840,250			40,735		1,757,445	21
	338,075	308,280	362,120							573,794	22
110,857	1,215,751	624,334	509,502	193,227	316,275		206,014	1,517,116	150,279	1,988,685	23
108,006	1,115,324	711,502	540,934	86,530	454,404		161,145	1,920,712	66,569	1,834,685	24
63,188	649,004	432,860	576,669	66,000	510,669		16,882	253,588	2,000	1,105,958	25
	359,938	406,539	401,333		401,333		2,525		1,700	595,270	26
	191,219	384,789	146,289		146,289					551,129	27
	61,840	50,000	130,000							102,800	28
923,704	5,017,405	12,643,679	1,505,141		1,505,141	32,000	284,974	3,711,210	870,912	10,081,852	29
528,103	2,910,640	10,915,958	1,146,940	2,000	1,144,940		65,075	2,610,885	584,703	6,620,237	30
315,786	2,552,705	2,637,876	1,812,076	52,989	1,759,087		44,500	1,828,589	735,293	5,082,087	31
	1,394,748	338,000	1,088,684	7,266	1,081,418		8,000	519,700	591,130	2,483,596	32
	1,515,326	1,350,100	904,900	25,000	879,900			499,894	249,356	3,213,481	33
	132,075	148,000	196,000							314,120	34
195,203	2,271,099	47,000	559,124	39,605	519,519			4,778,112	1,017,818	3,344,655	35
90,500	1,766,831	125,733	735,548	28,850	706,698	90,500		4,071,207	722,031	2,713,850	36
110,720	1,618,621	1,047,900	788,311	140,000	648,311		12,218	2,289,364	553,792	2,516,664	37
	14,838								22,750	36,000	38
	68,541		113,000		113,000			30,000		137,000	39
466,615	2,825,014	2,143,861	1,985,983	307,454	1,678,529		438,636	1,221,624	397,103	5,371,452	40
205,658	2,202,640	2,068,413	2,472,767	1,181,605	1,291,104	3,175	27,517	991,497	271,444	4,043,977	41
197,422	2,029,921	2,429,183	1,765,206	532,344	1,232,862	124,325	47,000	467,410	354,431	3,771,567	42
	1,013,949	1,591,207	1,101,675	126,174	975,501	21,779	169,418	20,134	64,607	2,432,271	43
	625,391	791,675	438,794	76,000	362,794		10,000	31,250	66,063	1,251,742	44
	560,368	1,186,721	769,140							1,353,528	45
5,434,297	46,228,900	26,543,657	6,285,143	568,642	5,716,501	218,525	4,620,713	107,421,261	7,919,922	80,648,618	46
4,260,577	32,699,721	26,772,879	7,031,403	1,331,117	5,650,286	685,885	2,212,261	101,471,281	5,276,670	60,473,407	47
2,242,276	23,059,630	23,703,619	10,083,381	1,081,363	9,002,018	241,049	3,174,904	23,724,064	5,929,998	42,993,045	48
	10,254,739	16,746,107	4,006,871	239,378	3,767,553	40,150	1,146,420	7,559,767	3,009,359	19,696,588	49
	6,505,973	8,031,439	3,112,622	150,800	2,961,822		179,857	1,570,543	1,871,183	11,405,380	50
	2,082,344	2,195,341	1,462,866							4,847,984	51
3,132,492	28,143,434	24,470,590	4,977,789	439,929	4,537,860	193,029	4,444,951	56,512,123	5,105,538	46,108,600	52
2,199,029	20,218,200	24,337,305	5,528,329	710,834	4,817,495	685,885	2,105,354	59,112,590	3,050,116	35,886,048	53
1,389,427	13,669,169	22,346,828	9,024,692	882,065	8,142,627	215,195	3,069,939	5,635,241	1,730,097	24,776,582	54
	5,072,058	15,625,791	2,548,969	186,326	2,362,643	40,000	1,062,011	538,714	584,626	9,899,540	55
	3,391,840	7,019,839	2,168,822	150,800	2,018,022		179,857	100,000	50,500	5,528,742	56
	870,479	1,348,941	689,066							1,944,090	57
121,068	1,379,513	198,382	139,071	25,270	113,801	7,502		1,815,300	331,739	2,539,178	58
122,374	997,110	217,148	155,160	88,068	67,092			1,923,684	285,957	1,748,148	59
101,146	582,783	379,620	404,847	188,839	216,008	10,673	18,623	462,582	150,229	1,091,403	60
	258,043	487,026	175,184	5,400	169,784	150	15,553		109,400	861,181	61
	188,030	214,200	230,000		230,000			2,500	1,000	568,900	62
	279,952	766,400	419,800							783,456	63
2,102,081	16,010,521	1,874,685	1,168,283	103,443	1,064,840	17,994	175,762	46,895,164	2,424,981	30,753,140	64
1,884,722	10,928,113	2,218,426	1,347,914	582,215	765,699		106,907	38,323,301	1,875,037	21,896,063	65
741,956	8,720,363	977,171	654,042	10,459	643,583	15,181	86,342	17,511,141	3,980,922	16,944,237	66
	4,924,138	633,290	1,282,778	47,592	1,235,126		68,856	7,021,053	2,314,833	8,935,147	67
	2,925,323	797,400	713,800		713,800			1,467,543	1,819,183	5,306,738	68
	928,915	80,000	354,000							2,114,315	69
26,422	164,000							691,510	450	296,197	70
32,471	209,048							1,099,817		429,055	71
52,234	531,432							1,507,164	57,214	951,503	72
21,981	347,250							1,011,889	65,560	514,093	73
9,747	87,315							115,700	68,750	180,823	74
	500								500	720	75
	750							500	500	1,000	76
	2,998									6,123	77

* No establishments reported in 1870 and 1890.

† No establishments reported in 1860.

‡ No establishments reported in 1890, 1880, 1870, and 1860.

MANUFACTURES.

TABLE 5.—HOSIERY AND KNIT GOODS—COMPARATIVE SUMMARY, BY

STATE.	Census.	Number of establishments.	Capital.	SALARIED OFFICIALS, CLERKS, ETC.		WAGE-EARNERS AND WAGES.					MACHINERY.				
				Number.	Salaries.	Total.		Average number.			Woolen cards.	Combining machines.	Knitting machines.	Sewing machines.	Spindles.
						Average number.	Wages.	Men 16 years and over.	Women 16 years and over.	Children under 16 years.					
78 Southern states ¹	1905	119	\$7,980,684	376	\$387,536	11,253	\$2,295,242	2,739	6,319	2,195	33	.....	11,088	2,022	50,936
79	1900	71	3,522,871	201	174,678	6,137	1,115,356	1,480	3,245	1,412	41	.....	5,519	1,014	24,126
80	1880	22	647,099	80	24,708	1,484	288,352	211	894	379	15	.....	795	.....	6,353
81	1880	1	5,000	.....	.....	4	700	.....	.....	2	.....	.....	1	.....	.....
82	1860	3	2,700	.....	.....	4	1,680	4	.....	.....	.....	.....	.....	.....	.....
83 Virginia ²	1905	14	715,530	60	49,470	1,842	430,321	456	1,077	309	31	.....	1,310	641	9,516
84	1900	15	978,575	38	36,057	1,845	394,871	601	988	256	34	.....	993	565	12,036
85 North Carolina ³	1905	40	2,080,649	102	124,854	2,944	617,372	632	1,554	758	.....	.....	3,043	330	13,264
86	1900	24	674,869	64	46,224	1,495	255,253	317	735	443	5	.....	1,354	191	2,860
87	1890	5	72,900	5	3,150	179	27,260	19	105	55	.....	.....	136	.....	512
88 South Carolina ⁴	1905	14	823,822	40	30,333	1,058	186,721	367	430	261	.....	.....	1,678	113	11,904
89	1900	6	345,212	15	13,520	359	73,872	73	158	128	.....	.....	785	10	5,620
90 Georgia ⁵	1905	21	1,946,853	88	92,783	1,935	395,986	407	1,164	364	.....	.....	1,677	444	6,560
91	1900	16	928,887	46	39,467	1,208	200,662	217	682	309	.....	.....	1,078	235	.....
92	1890	4	121,494	11	7,860	338	64,092	43	221	74	2	.....	225	.....	960
93 Kentucky ⁶	1860	3	2,700	.....	.....	4	1,680	4	.....	.....	.....	.....	.....	.....	.....
94 Tennessee ⁴	1905	16	1,159,989	41	40,770	1,810	341,033	478	1,083	249	.....	.....	1,787	342	.....
95	1900	4	216,950	12	15,300	511	72,980	113	228	170	.....	.....	581	.....	.....
96 Alabama ⁶	1905	8	563,102	22	17,666	505	93,406	111	273	121	.....	.....	499	119	5,372
97	1890	3	94,373	3	2,028	409	62,810	22	137	250	2	.....	128	.....	.....
98 Louisiana ⁷	1890	3	106,600	6	9,150	278	42,691	20	258	.....	.....	.....	169	.....	1,800
99 All other Southern states.	*1905	6	690,739	23	31,660	1,159	230,403	288	738	133	2	.....	1,094	33	4,320
100	*1900	6	378,378	26	24,110	719	117,718	159	454	106	2	.....	728	13	3,610
101	*1890	7	251,732	5	2,520	280	91,499	107	173	.....	11	.....	137	.....	3,081
102	11 1880	1	5,000	.....	.....	4	700	2	.....	2	.....	.....	1	.....	.....
103 Western states.....	1905	161	16,710,017	802	882,071	14,940	4,293,459	2,820	10,829	1,291	105	5	14,310	2,896	46,713
104	1900	129	10,792,485	592	719,315	11,061	2,885,045	2,535	7,400	1,126	92	.....	10,261	1,925	32,898
105	1890	146	5,190,366	293	315,860	8,076	1,715,340	1,115	6,668	293	60	.....	6,056	.....	22,152
106	1880	65	534,799	.....	.....	2,862	330,210	339	2,093	430	7	.....	1,609	72	1,660
107	1870	23	36,300	.....	.....	143	24,390	50	89	4	.....	.....	68	2	12
108	1860	13	21,900	.....	.....	46	12,228	33	13	.....	.....	.....	.....	.....	.....
109 Ohio.....	1905	28	2,329,707	134	145,642	2,490	713,580	305	1,840	345	11	1	2,308	643	5,484
110	1900	24	1,067,937	56	55,356	1,413	354,369	154	1,229	30	10	.....	1,147	170	3,920
111	1890	44	1,071,007	67	68,134	1,831	398,496	107	1,649	75	8	.....	1,574	.....	2,456
112	1880	23	187,000	.....	.....	745	94,858	53	574	118	.....	.....	368	4	60
113	1870	5	9,400	.....	.....	22	5,250	16	6	.....	.....	.....	7	.....	.....
114	1860	11	10,900	.....	.....	36	9,264	23	13	.....	.....	.....	.....	.....	.....
115 Michigan ¹⁰	1905	38	3,283,955	175	174,890	3,085	769,247	583	2,342	160	30	.....	2,916	734	16,646
116	1900	32	2,135,916	201	187,574	2,509	580,129	498	1,873	138	28	.....	2,828	588	6,686
117	1890	10	560,917	33	34,435	915	173,909	131	683	1	14	.....	678	.....	3,680
118	1880	11	147,389	.....	.....	962	92,324	80	706	176	4	.....	521	9	920
119 Indiana ¹⁰	1905	5	2,215,433	84	85,489	1,720	509,500	604	830	286	34	.....	886	310	8,100
120	1900	7	2,728,306	103	201,085	2,016	703,129	1,032	874	110	27	.....	633	272	8,500
121	1890	9	716,989	27	29,721	935	177,798	281	593	61	18	.....	670	.....	7,392
122	1880	5	45,000	.....	.....	284	24,700	26	201	57	.....	.....	183	5	.....
123	1870	5	4,050	.....	.....	26	540	7	18	1	.....	.....	9	1	.....
124 Wisconsin ¹²	1905	37	4,370,904	204	233,876	4,224	1,181,498	594	3,251	379	16	1	4,275	458	9,051
125	1900	27	2,558,299	125	150,209	2,722	600,495	341	1,756	625	16	.....	2,832	451	8,694
126	1890	23	1,214,727	57	70,580	2,239	379,144	282	1,852	105	6	.....	1,138	.....	2,800
127	1880	4	10,010	.....	.....	28	3,364	6	20	2	.....	.....	19	4	.....
128 Illinois ¹²	1905	22	2,835,281	63	93,596	2,245	746,682	569	1,625	51	10	3	2,779	344	5,584
129	1900	14	1,530,990	46	66,720	1,805	494,285	417	1,233	155	7	.....	1,975	282	3,480
130	1890	35	1,254,576	74	78,301	1,804	466,808	279	1,479	48	14	.....	1,525	.....	5,824
131	1880	14	105,800	.....	.....	707	92,385	160	471	76	3	.....	433	48	680
132	1870	3	1,800	.....	.....	27	1,800	4	21	2	1	.....	10	1	12

¹ No establishments reported in 1870.² Included in "all other Southern states" in 1890. No establishments reported in 1880, 1870, and 1860.³ No establishments reported in 1880, 1870, and 1860.⁴ No establishments reported in 1890, 1880, 1870, and 1860.⁵ Included in "all other Southern states" in 1905 and 1890. No establishments reported in 1900, 1880, and 1870.⁶ Included in "all other Southern states" in 1900. No establishments reported in 1880, 1870, and 1860.⁷ Included in "all other Southern states" in 1905 and 1900. No establishments reported in 1880, 1870, and 1860.⁸ Included in "all other Southern states" in 1905 and 1900. No establishments reported in 1880, 1870, and 1860.⁹ Included in "all other Southern states" in 1905 and 1900. No establishments reported in 1880, 1870, and 1860.¹⁰ Included in "all other Southern states" in 1905 and 1900. No establishments reported in 1880, 1870, and 1860.¹¹ Included in "all other Southern states" in 1905 and 1900. No establishments reported in 1880, 1870, and 1860.¹² Included in "all other Southern states" in 1905 and 1900. No establishments reported in 1880, 1870, and 1860.

HOSIERY AND KNIT GOODS.

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STATES AND GEOGRAPHIC DIVISIONS: 1860 TO 1905—Continued.

Miscellaneous expenses.	Cost of materials used.	PRINCIPAL MATERIALS—QUANTITIES CONSUMED.								Value of products.	
		Raw cotton (pounds).	Wool in condition purchased.			Animal hair and noils, purchased (pounds).	Shoddy, purchased (pounds).	Yarns purchased.			
			Total (pounds).	Foreign (pounds).	Domestic (pounds).			Cotton (pounds).	Woolen, worsted, and merino (pounds).		
\$675,042 346,408 52,760 1,700 5,900	\$6,280,394 2,798,219 459,808 1,700 5,900	5,659,087 5,976,913 982,600 1,000	45,000 58,000 56,500 1,000	10,000 48,000 56,500	45,000 48,000 56,500	473,434 150,007 140,000	24,196,583 10,607,638 1,397,875	36,054 428,180 200 1,400	\$10,780,566 6,031,336 973,136 2,600 11,700	78 79 80 81 82	
159,567 119,198	1,325,602 797,818	302,274 4,136,996				411,331 90,694	4,446,241 2,097,316	500 7,000	2,107,602 1,498,066	83 84	
140,215 35,920 3,097	1,394,811 504,027 66,925	2,112,160 1,300,378				10,125 20,000	5,115,699 2,136,604 277,000		2,483,827 1,023,150 126,875	85 86 87	
73,864 38,887	586,490 237,622	1,200,000 467,539					1,978,972 1,269,500		1,078,682 392,237	88 89	
133,341 72,631 10,605	1,417,411 757,430 70,697	595,991 200,000				51,978	6,606,954 3,707,218 286,340	854 1,180	2,325,854 1,230,801 166,850	90 91 92	
	5,900		1,000						11,700	93	
79,446 10,270	969,196 248,950						4,701,653 1,099,000	2,000 20,000	1,627,823 395,150	94 95	
27,926 3,422	253,639 103,893	884,162					544,112 545,400		460,246 190,725	96 97	
2,480	58,202	300,000					120,000		151,180	98	
60,683 69,502 33,156	333,245 252,372 160,091 1,700	564,500 72,000 482,600	45,000 58,000 56,500	10,000 48,000 56,500	45,000 48,000 56,500	39,313 140,000	802,952 298,000 169,135	32,700 400,000 200 1,400	696,532 491,932 337,506 2,600	99 100 101 102	
2,138,063 878,706 402,873	10,508,367 6,248,504 3,680,462 919,639 47,727 21,715	988,294 937,019 470,449 46,500 000 4,000	5,607,090 5,148,044 3,100,876 240,000 000 6,500	21,505 647,515 617,758	5,585,585 4,500,529 2,483,118 240,000 000	4,000 314,228 54,922	651,738 485,800 338,642 10,000	15,780,005 8,915,967 2,187,750 155,000 16,300	5,136,307 2,642,349 2,712,160 779,436 43,175	20,334,021 12,143,150 7,240,031 1,555,123 95,387 46,680	103 104 105 106 107 108
298,296 99,411 68,991	2,177,368 807,673 914,085 241,583 10,360 13,515	96,600 50,000 359,000 4,000	624,078 140,500 359,000 6,500	15,000 4,000	624,078 125,500 355,000	5,053	70,000 5,000	1,649,479 432,372 296,392 6,000 10,600	1,676,826 723,326 997,170 245,700 10,600	3,997,047 1,576,285 1,635,948 418,825 23,100 31,800	109 110 111 112 113 114
452,529 265,124 57,901	1,844,109 1,459,378 285,057 226,627	237,638 182,467 265,555 40,000	1,043,144 1,434,998 247,081 180,000	1,000 32,905 25,000	1,042,144 1,402,093 222,081 180,000	3,605	9,304 154,304 30,937 10,000	2,218,111 1,736,671 67,400 1,300	1,048,259 622,717 141,067 159,600	3,623,885 2,791,257 701,322 377,249	115 116 117 118
201,962 108,442 70,437	1,105,164 1,200,483 408,195 103,280 2,842	190,126 173,038 61,413	2,485,778 1,214,122 1,095,253	523,216 568,758	2,485,778 690,906 526,495	300,000 25,762	252,321 92,763 143,572	1,439,084 945,495 231,413 30,000	65,858 20,995 77,440 81,500 2,575	2,105,277 2,424,304 827,104 158,200 5,450	119 120 121 122 123
608,486 223,216 102,727	2,279,472 1,176,146 899,371 9,125	121,600 124,310 18,361	704,796 799,357 581,042	15,005 76,394 20,000	689,791 722,963 561,042	5,265 11,660	32,417 54,833 131,213	3,954,498 1,532,591 249,545	1,100,815 663,859 970,833 7,800	4,941,944 2,486,813 1,635,641 18,817	124 125 126 127
371,651 126,332 68,123	2,099,041 1,261,242 980,780 290,895 5,775	274,450 322,500 125,120 6,500	682,594 1,514,400 818,500 60,000 600		682,594 1,514,400 818,500 60,000 600		332,696 111,500 27,920	5,112,300 3,817,650 1,223,500 106,400 100	624,578 335,800 323,500 236,800 5,100	3,579,436 2,145,429 1,090,035 484,124 8,800	128 129 130 131 132

*Includes establishments distributed as follows: Kentucky, 1; Louisiana, 1; Mississippi, 2; West Virginia, 2.

*Includes establishments distributed as follows: Alabama, 1; Louisiana, 1; Mississippi, 1; Texas, 1; West Virginia, 2.

*Includes establishments distributed as follows: Florida, 1; Kentucky, 2; Virginia, 2; West Virginia, 2.

*Includes West Virginia, 1.

*No establishments reported in 1870 and 1860

*No establishments reported in 1860.

MANUFACTURES.

TABLE 5.—HOSIERY AND KNIT GOODS—COMPARATIVE SUMMARY, BY

STATE.	Census.	Number of establishments.	Capital.	SALARIED OFFICIALS, CLERKS, ETC.		WAGE-EARNERS AND WAGES.					MACHINERY.				
				Number.	Salaries.	Total.		Average number.			Wool-en cards.	Comb-ing machines.	Knit-ting machines.	Sewing machines.	Spin-dles.
						Average number.	Wages.	Men 16 years and over.	Women 16 years and over.	Children under 16 years.					
Western states—Cont'd.															
133 Minnesota ¹	1905	10	\$968,304	51	\$72,226	615	\$190,148	87	478	50	4	.....	490	203	1,848
134	1900	8	484,004	21	26,657	293	77,589	51	206	36	3	.....	476	94	1,418
135	1890	3	247,498	10	15,356	119	31,000	17	102	.....	.....	.....	152	.....	.....
136	1880	1	8,000	.....	.....	12	2,819	8	4	.....	.....	.....	10	2	.....
137	1870	1	150	.....	.....	1	.....	1	.....	.....	.....	.....	.....	.....	.....
138 Iowa ²	1890	3	8,950	2	820	7	1,730	1	6	.....	.....	.....	14	.....	.....
139	1880	3	2,200	.....	.....	6	460	3	3	.....	.....	.....	7	.....	.....
140	1870	2	5,200	.....	.....	6	1,200	3	3	.....	.....	.....	.....	.....	.....
141 Missouri ³	1890	7	33,247	8	6,188	117	28,289	1	116	.....	.....	.....	145	.....	.....
142	1880	4	29,400	.....	.....	118	19,300	3	114	1	.....	.....	68	.....	.....
143	1870	7	15,700	.....	.....	61	15,600	19	41	1	.....	.....	33	.....	.....
144	1860	2	11,000	.....	.....	10	2,964	10	.....	.....	.....	.....	.....	.....	.....
145 Utah ⁴	1905	9	199,352	39	28,354	171	48,211	14	156	1	.....	.....	180	102	.....
146	1900	5	52,550	13	5,260	91	21,599	15	72	4	.....	.....	101	20	.....
147	1890	5	33,370	5	3,070	65	13,950	.....	60	5	.....	.....	73	.....	.....
148 California ⁵	1905	5	256,100	38	36,000	222	87,851	16	194	12	.....	.....	195	85	.....
149	1900	8	89,160	10	12,160	79	27,880	6	66	7	.....	.....	82	43	.....
150 All other Western states.	⁶ 1905	7	250,981	14	11,998	168	46,742	48	113	7	.....	.....	281	17	.....
151	⁷ 1900	9	145,323	17	14,294	133	25,570	21	91	21	1	.....	187	5	200
152	⁸ 1890	7	49,085	10	9,255	144	44,216	16	128	.....	.....	.....	87	.....	.....

¹ No establishments reported in 1860.² Included in "all other Western states" in 1905 and 1900. No establishments reported in 1860.³ Included in "all other Western states" in 1905 and 1900.⁴ No establishments reported in 1880, 1870, and 1860.

HOSIERY AND KNIT GOODS.

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STATES AND GEOGRAPHIC DIVISIONS: 1860 TO 1905—Continued.

Miscellaneous expenses.	Cost of materials used.	PRINCIPAL MATERIALS—QUANTITIES CONSUMED.								Value of products.	
		Raw cotton (pounds).	Wool in condition purchased.			Animal hair and noils, purchased (pounds).	Shoddy, purchased (pounds).	Yarns purchased.			
			Total (pounds).	Foreign (pounds).	Domestic (pounds).			Cotton (pounds).	Woolen, worsted, and merino (pounds).		
\$109,360	\$626,001	67,680	65,500	5,500	60,000	4,000	25,000	1,084,314	380,807	\$1,202,586	133
31,470	197,184	84,264	37,667		37,667	305		254,968	155,141	410,092	134
24,345	87,662							42,000	105,000	183,743	135
	5,000								5,400	10,000	136
	200								200	500	137
419	1,975							3,000	1,275	5,763	138
	1,554								1,536	2,908	139
	1,510							600	300	2,887	140
3,803	30,524							37,500	30,325	81,445	141
	41,575							11,300	41,100	85,000	142
	27,040							15,600	24,400	54,650	143
	8,200									14,880	144
18,790	167,022							136,081	109,201	326,392	145
4,577	24,184		3,000		3,000			15,700	22,075	66,357	146
2,146	25,475							500	33,875	53,560	147
51,746	145,666							21,000	94,850	356,999	148
10,570	71,751							30,020	67,836	126,980	149
25,243	64,524	200	1,200		1,200			165,138	35,113	200,455	150
9,564	50,463	440	4,000		4,000		2,400	150,500	30,600	115,633	151
3,981	47,338							36,500	31,675	125,470	152

* Included in "all other Western states" in 1890. No establishments reported in 1880, 1870, and 1860.

* Includes establishments distributed as follows: Idaho, 2; Iowa, 1; Kansas, 1; Missouri, 1; Nebraska, 1; Oregon, 1.

* Includes establishments distributed as follows: Idaho, 1; Iowa, 2; Kansas, 1; Missouri, 2; Montana, 1; Nebraska, 1; Oregon, 1.

* Includes establishments distributed as follows: California, 2; Colorado, 2; Kansas, 1; Nebraska, 1; Washington, 1.

TABLE 6.—HOSIERY AND KNIT GOODS—

	United States.	Alabama.	California.	Connecticut.	Delaware.
1 Number of establishments.....	1,079	8	5	24	7
2 Capital, total.....	\$106,663,531	\$563,102	\$256,100	\$5,814,871	\$212,802
3 Land.....	\$3,828,321	\$41,500	\$300	\$192,300	\$6,050
4 Buildings.....	\$13,713,924	\$105,588	\$10,700	\$719,301	\$18,518
5 Machinery, tools, and implements.....	\$32,089,938	\$249,426	\$68,050	\$1,390,170	\$131,977
6 Cash and sundries.....	\$57,031,348	\$166,588	\$177,050	\$3,513,100	\$56,257
7 Proprietors and firm members.....	991	4	3	7	2
8 Salaried officials, clerks, etc.: Total number.....	4,304	22	38	102	27
9 Total salaries.....	\$4,436,941	\$17,666	\$36,000	\$162,779	\$18,374
10 Officers of corporations— Number.....	636	4	4	29	3
11 Salaries.....	\$1,321,925	\$4,050	\$9,300	\$77,305	\$4,680
12 General superintendents, managers, clerks, etc.— Total number.....	3,668	18	34	73	24
13 Total salaries.....	\$3,115,016	\$13,616	\$26,700	\$85,474	\$13,694
14 Men— Number.....	2,783	18	21	61	17
15 Salaries.....	\$2,716,438	\$13,616	\$18,450	\$78,974	\$10,678
16 Women— Number.....	885	.....	13	12	7
17 Salaries.....	\$398,578	.....	\$8,250	\$6,500	\$3,016
18 Wage-earners, including pieceworkers, and total wages: Greatest number employed at any one time during the year.....	116,869	586	253	3,782	457
19 Least number employed at any one time during the year.....	92,537	439	193	3,372	309
20 Average number.....	103,715	505	222	3,594	323
21 Total wages.....	\$31,536,024	\$93,406	\$87,851	\$1,305,019	\$75,087
22 Men 16 years and over— Average number.....	25,167	111	16	1,148	30
23 Wages.....	\$10,747,214	\$29,033	\$11,906	\$566,870	\$12,367
24 Women 16 years and over— Average number.....	68,867	273	194	2,374	261
25 Wages.....	\$19,354,014	\$48,264	\$73,520	\$723,417	\$58,320
26 Children under 16 years— Average number.....	9,681	121	12	72	32
27 Wages.....	\$1,434,796	\$16,109	\$2,125	\$14,732	\$4,400
28 Average number of wage-earners, including pieceworkers, employed during each month: Men 16 years and over— January.....	24,440	119	16	1,144	84
29 February.....	24,708	115	16	1,118	84
30 March.....	25,089	122	17	1,151	84
31 April.....	25,193	122	17	1,134	86
32 May.....	25,302	118	17	1,167	25
33 June.....	25,317	119	17	1,110	25
34 July.....	25,002	62	16	1,145	25
35 August.....	25,101	61	16	1,156	27
36 September.....	25,476	127	15	1,161	30
37 October.....	25,675	132	15	1,174	31
38 November.....	25,542	116	15	1,158	34
39 December.....	25,159	119	15	1,168	35
40 Women 16 years and over— January.....	67,064	290	169	2,365	277
41 February.....	68,296	291	187	2,344	287
42 March.....	69,194	285	209	2,357	282
43 April.....	69,368	293	212	2,381	221
44 May.....	69,171	287	222	2,373	215
45 June.....	69,167	255	212	2,385	227
46 July.....	67,995	202	192	2,366	234
47 August.....	68,268	202	192	2,375	257
48 September.....	69,220	286	187	2,360	272
49 October.....	70,132	291	192	2,393	295
50 November.....	69,885	301	187	2,389	286
51 December.....	68,644	293	167	2,400	279
52 Children under 16 years— January.....	9,332	124	11	63	38
53 February.....	9,464	121	12	63	39
54 March.....	9,555	124	13	62	35
55 April.....	9,585	126	13	64	27
56 May.....	9,678	119	13	66	32
57 June.....	9,713	122	12	73	30
58 July.....	9,625	99	12	79	30
59 August.....	9,661	96	11	84	28
60 September.....	9,718	126	11	77	30
61 October.....	9,955	124	12	79	31
62 November.....	9,937	132	12	77	30
63 December.....	9,949	130	12	77	34
64 Skilled operatives, average number: Spinners— Men 16 years and over.....	2,011	.....	.....	112	.....
65 Women 16 years and over.....	662	3	.....	81	.....
66 Children under 16 years.....	236	16	.....	14	.....
67 Knitters— Men 16 years and over.....	7,783	10	10	96	84
68 Women 16 years and over.....	18,012	75	74	564	122
69 Children under 16 years.....	2,902	75	.....	20	.....
70 Finishers— Men 16 years and over.....	4,302	32	1	78	21
71 Women 16 years and over.....	33,740	136	134	617	49
72 Children under 16 years.....	2,320	9	12	2	4
73 Machinery: Sets of cards, number.....	2,001	27	.....	191	.....
74 Woolen.....	927	.....	.....	109	.....
75 Worsted.....	24	.....	.....	8	.....
76 Shoddy.....	50	.....	.....	18	.....
77 Cotton.....	1,000	27	.....	56	.....
78 Combing machines, number.....	224	.....	.....	7	4
79 Of American manufacture.....	51	.....	.....	1	4
80 Of foreign manufacture.....	173	6
81 Sewing machines, number.....	30,410	119	85	744	139

HOSIERY AND KNIT GOODS.

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DETAILED SUMMARY, BY STATES: 1905.

Georgia.	Illinois.	Indiana.	Maine.	Maryland.	Massachusetts.	Michigan.	Minnesota.	New Hampshire.	
21	22	5	3	4	58	38	10	21	I
\$1,946,853	\$2,835,281	\$2,215,433	\$15,500	\$639,160	\$7,826,240	\$3,283,955	\$968,304	\$2,749,589	2
\$62,842	\$64,075	\$72,666	\$100	\$15,130	\$309,795	\$95,388	\$36,100	\$209,364	3
\$314,082	\$281,983	\$234,854	\$600	\$51,000	\$1,027,825	\$403,334	\$169,701	\$313,406	4
\$756,684	\$933,643	\$432,441	\$5,400	\$165,701	\$1,660,167	\$764,092	\$201,475	\$574,575	5
\$813,245	\$1,555,580	\$1,475,472	\$9,400	\$407,329	\$4,828,453	\$2,021,141	\$561,028	\$1,652,244	6
4	19		5	1	49	14	5	20	7
88	63	84		39	244	175	51	89	8
\$92,783	\$93,596	\$85,489		\$29,110	\$317,784	\$174,890	\$72,226	\$91,570	9
28	17	11		2	55	35	11	13	10
\$42,430	\$49,500	\$27,940		\$2,500	\$96,048	\$66,002	\$29,896	\$32,600	11
10	46	73		37	208	140	40	76	12
\$50,353	\$44,096	\$57,549		\$26,610	\$221,736	\$108,888	\$42,330	\$58,970	13
53	35	58		34	145	85	32	61	14
\$46,943	\$38,046	\$51,349		\$25,998	\$187,397	\$86,988	\$37,678	\$50,881	15
7	11	15		3	63	55	8	15	16
\$3,410	\$6,050	\$6,200		\$612	\$34,339	\$21,900	\$4,652	\$8,089	17
2,171	2,544	1,978	69	914	8,937	4,035	735	3,024	18
1,726	2,047	1,418	49	833	7,308	2,205	475	2,473	19
1,935	2,245	1,720	56	876	8,110	3,085	615	2,790	20
\$395,986	\$746,682	\$509,500	\$12,975	\$195,922	\$2,839,185	\$769,247	\$190,148	\$943,120	21
407	569	604	10	181	2,093	583	87	940	22
\$116,324	\$277,657	\$253,298	\$4,260	\$60,881	\$963,737	\$253,473	\$36,230	\$414,823	23
1,164	1,625	830	44	612	5,498	2,342	478	1,791	24
\$234,409	\$459,236	\$223,373	\$8,560	\$127,409	\$1,779,533	\$490,638	\$147,335	\$517,412	25
304	51	286	2	83	519	160	50	59	26
\$45,253	\$9,789	\$32,829	\$125	\$7,632	\$95,915	\$25,136	\$6,583	\$10,885	27
429	555	536	8	171	2,120	479	81	925	28
423	562	555	10	177	2,076	526	77	954	29
413	587	568	9	186	2,073	536	81	977	30
411	587	579	8	189	2,034	540	91	965	31
400	580	592	7	198	2,048	550	93	967	32
387	585	603	13	181	2,034	575	92	952	33
386	552	606	12	181	2,044	613	90	930	34
389	550	629	13	178	2,016	625	89	917	35
386	557	656	12	175	2,079	647	91	932	36
403	566	641	13	176	2,182	675	91	935	37
423	569	626	7	180	2,196	654	89	908	38
424	578	657	8	180	2,214	576	79	918	39
1,188	1,507	695	38	603	5,500	1,671	400	1,809	40
1,188	1,541	746	40	610	5,461	2,032	437	1,847	41
1,194	1,645	769	40	610	5,443	2,117	462	1,886	42
1,188	1,653	794	40	612	5,345	2,192	490	1,881	43
1,165	1,612	814	40	610	5,391	2,264	517	1,858	44
1,150	1,630	861	50	613	5,433	2,323	522	1,846	45
1,123	1,619	839	50	608	5,370	2,645	535	1,751	46
1,123	1,621	862	50	609	5,351	2,639	537	1,709	47
1,145	1,673	895	50	619	5,536	2,699	539	1,757	48
1,150	1,666	891	50	616	5,705	2,617	507	1,735	49
1,179	1,686	907	40	620	5,743	2,539	420	1,713	50
1,175	1,647	887	40	614	5,698	2,366	370	1,700	51
372	47	220	1	84	503	113	48	53	52
372	47	230	1	85	512	143	49	56	53
372	50	248	1	88	522	153	48	59	54
374	50	262	1	81	510	164	51	57	55
364	53	285	2	85	526	171	52	65	56
348	54	293	3	84	511	188	55	64	57
345	54	290	3	79	523	197	56	60	58
344	52	305	3	82	510	191	44	62	59
343	54	314	2	81	509	176	48	60	60
368	53	323	3	79	534	168	52	57	61
379	52	325	2	83	537	131	51	58	62
387	46	337	3	85	531	125	46	57	63
30	19	20			395	77	4	82	64
27		45			280		2	33	65
18					47				66
168	250	166	13	22	417	193	30	258	67
343	313	280	25	276	889	1,153	192	383	68
174	17	2		48	96	50		16	69
159	80	84		234	288	118	35	174	70
632	971	392	20	70	3,170	1,194	328	384	71
78	45	66		10	141	43		23	72
26	18	42			501	78	4	68	73
	10	34			39	30	4	64	74
	1	1							75
	2	6							76
26	1	1			462	48		14	77
					120				78
									79
					120				80
444	344	310	6	123	2,518	734	203	335	81

TABLE 6.—HOSIERY AND KNIT GOODS—

	United States.	Alabama.	California.	Connecticut.	Delaware.
82 Machinery—Continued.					
83 Spindles, total number.	603,180	5,372		86,952	
84 Producing, number.	506,362	5,372		86,752	
85 Mule, number.	475,928			86,752	
86 Woolen.	284,711			36,252	
87 Worsted.	8,400			6,000	
88 Cotton.	182,817			44,500	
89 Frame, number.	120,434	5,372			
90 Woolen.	1,950				
91 Worsted.	1,264				
92 Cotton.	117,220	5,372			
93 Doubling and twisting, number.	6,818			200	
94 Woolen.	3,102				
95 Worsted.	508				
96 Cotton.	3,208			200	
Knitting machines, number.	88,374	499	195	2,557	598
97 Spring-beard needle—					
98 Flat, ribbed.	1,455			93	
99 Flat, plain.	756				
100 Full-fashioned flat, ribbed.	210			19	
101 Full-fashioned flat, plain.	1,195			440	
102 Circular, ribbed.	1,087	10		83	26
103 Circular, plain.	7,163	28		661	
104 Circular hosiery, automatic.	1,648	90			
Lamb and other variety, hand.	335		8		
105 Latch needle—					
106 Flat, ribbed.	2,343			96	78
107 Flat, plain.	2,410				93
108 Full-fashioned flat, ribbed.	770			27	
109 Full-fashioned flat, plain.	1,317				
110 Circular, ribbed.	24,452	102	34	264	145
111 Circular, plain.	6,707			58	24
112 Circular hosiery, automatic.	30,313	269		736	232
113 Lamb and other variety, hand.	6,163		153	80	
114 Miscellaneous expenses, total.	\$10,320,176	\$27,926	\$51,746	\$466,615	\$26,422
115 Rent of works.	\$534,273	\$420	\$4,680	\$10,161	\$1,660
116 Taxes.	\$388,843	\$380	\$1,209	\$29,159	\$203
Rent of offices, interest, insurance, and all other sundry expenses not hitherto included.	\$8,672,815	\$26,626	\$42,257	\$412,224	\$23,059
117 Contract work.	\$724,245		\$3,600	\$15,071	\$1,500
118 Materials used, aggregate cost.	\$76,593,782	\$253,639	\$145,666	\$2,825,014	\$164,000
119 Principal materials, total cost.	\$69,529,021	\$212,735	\$135,134	\$2,434,570	\$134,291
120 Purchased in raw state.	\$12,078,052	\$88,902		\$1,026,473	
121 Purchased in partially manufactured form.	\$57,450,969	\$123,833	\$135,134	\$1,408,097	\$134,291
122 Fuel.	\$1,283,018	\$13,025		\$67,998	\$3,936
123 Rent of power and heat.	\$202,030		\$1,400	\$5,847	
124 Mill supplies.	\$541,174	\$3,040	\$357	\$34,901	\$2,371
125 All other materials.	\$4,564,632	\$17,971	\$4,075	\$252,062	\$21,956
126 Freight.	\$473,907	\$1,868	\$4,700	\$29,636	\$1,446
127 Products, total value.	\$136,558,139	\$460,246	\$356,999	\$5,371,452	\$296,197
128 Power:					
129 Number of establishments reporting.	1,002	8	3	24	6
Total horsepower.	83,814	805	21	3,757	290
Owned—					
Engines—					
130 Steam—					
131 Number.	795	10		27	7
Horsepower.	57,400	805		2,554	275
Gas and gasoline—					
132 Number.	72			1	
133 Horsepower.	659			5	
Water wheels—					
134 Number.	176			17	
135 Horsepower.	13,522			1,028	
Water motors—					
136 Number.	2				
137 Horsepower.	10				
Electric motors—					
138 Number.	414			5	1
139 Horsepower.	5,076			115	15
Rented—					
Electric motors—					
140 Number.	346		4	1	
141 Horsepower.	4,626		21	5	
142 Other kind, horsepower.	2,461			50	
143 Furnished to other establishments, horsepower.	941				

HOSIERY AND KNIT GOODS.

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DETAILED SUMMARY, BY STATES: 1905—Continued.

Georgia.	Illinois.	Indiana.	Maine.	Maryland.	Massachusetts.	Michigan.	Minnesota.	New Hampshire.	
6,560	5,584	8,100			125,406	16,646	1,848	18,433	82
6,352	5,216	8,100			124,580	15,470	1,848	17,993	83
2,400	5,216	8,100			69,076	5,470	1,848	16,477	84
	2,816	7,800			8,392	5,470	1,848	14,798	85
	2,400				60,684			1,679	86
2,400		300			55,504	10,000		1,516	87
3,952									88
					55,504	10,000		1,516	89
3,952					826	1,176		440	90
208	368				204			440	91
	168								92
	200								93
208					826	912			94
1,677	2,779	886	78	814	6,715	2,916	490	2,719	95
									96
23		22			310	6			97
		12			279	14		24	98
					7		25	1	99
					67		18		100
	7				66	105	15	10	101
	15	20			1,100	243	40	18	102
					4	62	11		103
			10		31	73			104
30	270	11	18		180	145	47	6	105
50	209	130			178	100		1	106
	32	10			16		20	3	107
	638	124			1				108
480	765	224		205	1,286	577	133	1,128	109
	48	218		240	171	188	141	244	110
1,070	774	99		369	2,730	452	12	1,148	111
24	21	18	50		289	951	28	136	112
\$133,341	\$371,651	\$201,962	\$615	\$52,234	\$923,704	\$452,529	\$109,360	\$375,780	113
\$500	\$27,280	\$500	\$340		\$20,371	\$7,905	\$2,835	\$4,821	114
\$10,100	\$8,780	\$8,481	\$30	\$1,387	\$73,135	\$19,944	\$3,584	\$12,119	115
\$122,741	\$308,511	\$191,781	\$245	\$40,847	\$752,051	\$393,852	\$102,941	\$336,585	116
	\$27,080	\$1,200		\$10,000	\$78,147	\$30,828		\$22,255	117
\$1,417,411	\$2,099,041	\$1,105,164	\$17,720	\$531,432	\$5,017,405	\$1,844,109	\$626,001	\$2,229,132	118
\$1,274,075	\$1,958,152	\$1,030,123	\$16,750	\$446,583	\$4,467,317	\$1,687,137	\$587,959	\$2,001,786	119
\$51,502	\$254,838	\$606,058			\$1,837,440	\$393,635	\$17,925	\$426,252	120
\$1,222,573	\$1,703,314	\$424,065	\$16,750	\$446,583	\$2,629,877	\$1,293,502	\$570,034	\$1,575,534	121
\$39,861	\$35,072	\$25,748	\$120	\$8,213	\$132,574	\$45,760	\$8,461	\$34,072	122
\$1,649	\$4,382	\$1,750	\$250	\$200	\$7,363	\$4,998	\$668	\$4,523	123
\$15,970	\$3,080	\$8,647	\$600	\$1,006	\$23,585	\$8,994	\$6,978	\$15,323	124
\$91,375	\$56,588	\$28,481		\$67,461	\$365,304	\$73,818	\$19,763	\$147,367	125
\$4,481	\$41,767	\$10,415		\$7,969	\$21,262	\$23,402	\$2,172	\$26,061	126
\$2,325,854	\$3,579,436	\$2,105,277	\$34,000	\$951,503	\$10,081,852	\$3,623,885	\$1,202,586	\$3,974,290	127
21	21	5	1	4	54	34	10	20	128
2,185	1,883	1,715	2	495	10,594	2,781	321	2,228	129
21	21	7		7	57	27	5	8	130
1,785	1,047	1,040		385	7,885	2,118	282	446	131
	2				7	6	2		132
	10				153	67	14		133
		3			15	2		21	134
		200			2,145	150		1,514	135
									136
									137
2	26	18		8	12	16	1	4	138
90	560	300		90	208	280	5	12	139
5	22	1	1	1	16	19	6	3	140
310	261	175	2	20	164	86	20	40	141
	5				39	80		216	142
50					16			10	143

TABLE 6.—HOSIERY AND KNIT GOODS—

		New Jersey.	New York.	North Carolina.	Ohio.
1	Number of establishments.....	25	261	40	28
2	Capital, total.....	\$1,934,489	\$35,206,059	\$2,080,649	\$2,329,707
3	Land.....	\$79,068	\$1,238,520	\$102,759	\$44,082
4	Buildings.....	\$334,395	\$4,657,689	\$278,343	\$127,874
5	Machinery, tools, and implements.....	\$667,946	\$10,415,088	\$944,736	\$618,548
6	Cash and sundries.....	\$853,080	\$18,894,762	\$754,811	\$1,539,203
7	Proprietors and firm members.....	23	211	38	25
8	Salaried officials, clerks, etc.:.....				
9	Total number.....	56	1,084	102	134
10	Total salaries.....	\$67,167	\$1,271,398	\$124,854	\$145,642
11	Officers of corporations—				
12	Number.....	8	161	27	15
13	Salaries.....	\$19,080	\$384,772	\$35,110	\$32,400
14	General superintendents, managers, clerks, etc.—				
15	Total number.....	48	923	75	119
16	Total salaries.....	\$48,087	\$886,626	\$89,744	\$113,242
17	Men—				
18	Number.....	42	738	66	88
19	Salaries.....	\$45,835	\$789,247	\$87,254	\$99,912
20	Women—				
21	Number.....	6	185	9	31
22	Salaries.....	\$2,252	\$97,379	\$2,490	\$13,330
23	Wage-earners, including pieceworkers, and total wages:				
24	Greatest number employed at any one time during the year.....	1,969	33,354	3,450	2,818
25	Least number employed at any one time during the year.....	1,470	26,298	2,584	2,170
26	Average number.....	1,742	29,251	2,944	2,490
27	Total wages.....	\$535,821	\$10,144,087	\$617,372	\$713,580
28	Men 16 years and over—				
29	Average number.....	592	9,068	632	305
30	Wages.....	\$244,376	\$3,803,002	\$202,333	\$146,516
31	Women 16 years and over—				
32	Average number.....	1,077	19,421	1,554	1,840
33	Wages.....	\$282,434	\$6,203,443	\$319,506	\$521,195
34	Children under 16 years—				
35	Average number.....	73	762	758	345
36	Wages.....	\$9,011	\$137,642	\$95,533	\$45,869
37	Average number of wage-earners, including pieceworkers, employed during each month:				
38	Men 16 years and over—				
39	January.....	595	8,641	596	307
40	February.....	593	8,837	609	291
41	March.....	582	9,089	616	308
42	April.....	582	9,242	633	324
43	May.....	587	9,214	643	328
44	June.....	593	9,236	643	336
45	July.....	597	9,106	643	335
46	August.....	592	9,110	638	330
47	September.....	594	9,230	633	300
48	October.....	579	9,202	658	266
49	November.....	596	9,117	639	267
50	December.....	614	8,792	633	253
51	Women 16 years and over—				
52	January.....	1,113	18,659	1,519	1,902
53	February.....	1,139	19,117	1,512	1,915
54	March.....	1,090	19,695	1,531	1,936
55	April.....	1,081	19,818	1,559	1,942
56	May.....	1,021	19,666	1,533	1,997
57	June.....	995	19,680	1,539	2,026
58	July.....	986	19,127	1,555	1,835
59	August.....	1,007	19,260	1,549	1,834
60	September.....	1,086	19,628	1,516	1,811
61	October.....	1,120	19,900	1,630	1,665
62	November.....	1,124	19,586	1,608	1,635
63	December.....	1,162	18,916	1,597	1,582
64	Children under 16 years—				
65	January.....	76	733	701	342
66	February.....	78	745	708	349
67	March.....	66	762	735	347
68	April.....	60	770	765	348
69	May.....	72	770	764	347
70	June.....	76	776	763	353
71	July.....	72	773	752	364
72	August.....	74	758	750	364
73	September.....	74	756	763	358
74	October.....	70	784	816	331
75	November.....	79	765	800	323
76	December.....	79	752	779	314
77	Skilled operatives, average number:				
78	Spinners—				
79	Men 16 years and over.....	40	840	34	8
80	Women 16 years and over.....	29	8	2	22
81	Children under 16 years.....	2		10	
82	Knitters—				
83	Men 16 years and over.....	203	2,297	262	130
84	Women 16 years and over.....	307	1,530	559	686
85	Children under 16 years.....	19	124	360	8
86	Finishers—				
87	Men 16 years and over.....	53	905	151	27
88	Women 16 years and over.....	522	12,133	692	1,157
89	Children under 16 years.....	3	262	114	43
90	Machinery:				
91	Sets of cards, number.....	38	749	51	11
92	Woolen.....	26	491		11
93	Worsted.....				
94	Shoddy.....		16		
95	Cotton.....	12	242	51	
96	Combing machines, number.....		72		1
97	Of American manufacture.....		31		1
98	Of foreign manufacture.....		41		
99	Sewing machines, number.....	333	14,695	330	643

¹ Includes establishments distributed as follows: Idaho, 2; Iowa, 1; Kansas, 1; Kentucky, 1; Louisiana, 1; Mississippi, 2; Missouri, 1; Nebraska, 1; Oregon, 1; West Virginia, 2.

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Pennsylvania.	Rhode Island.	South Carolina.	Tennessee.	Utah.	Vermont.	Virginia.	Wisconsin.	All other states. ¹
370	15	14	16	9	11	14	37	13
\$23,909,720	\$2,276,874	\$823,822	\$1,159,989	\$199,352	\$1,387,526	\$715,530	\$4,370,904	\$941,720
\$971,148	\$104,778	\$29,900	\$23,050	\$4,000	\$8,400	\$15,100	\$74,831	\$27,075
\$3,245,365	\$401,867	\$162,923	\$146,148	\$8,000	\$50,600	\$74,032	\$392,158	\$183,638
\$8,319,692	\$644,963	\$400,198	\$390,008	\$42,480	\$350,493	\$274,113	\$1,336,181	\$351,691
\$11,373,515	\$1,125,266	\$230,801	\$600,783	\$144,872	\$978,033	\$352,285	\$2,567,734	\$379,316
408	9	5	4	4	14	11	6	7
1,377	72	40	41	39	35	60	204	37
\$1,066,986	\$100,216	\$30,333	\$40,770	\$28,354	\$41,950	\$49,470	\$233,876	\$43,658
114	11	15	10	5	0	12	48	11
\$205,172	\$32,800	\$11,883	\$11,460	\$3,675	\$12,400	\$12,133	\$102,629	\$16,160
1,263	61	25	31	34	30	48	156	26
\$861,814	\$67,416	\$18,450	\$29,310	\$24,679	\$29,550	\$37,337	\$131,247	\$27,498
900	52	22	26	23	27	41	117	21
\$717,818	\$61,036	\$17,800	\$27,050	\$19,819	\$27,859	\$35,068	\$115,024	\$25,718
363	9	3	5	11	8	7	39	5
\$143,996	\$6,380	\$650	\$2,260	\$4,860	\$1,691	\$2,269	\$16,223	\$1,780
31,196	1,900	1,281	2,027	237	1,031	2,076	4,584	1,461
25,456	1,548	983	1,600	113	722	1,809	3,773	1,184
28,143	1,721	1,058	1,810	171	916	1,842	4,224	1,327
\$7,956,087	\$573,680	\$186,721	\$341,033	\$48,211	\$366,340	\$430,321	\$1,181,498	\$277,145
4,758	472	367	478	14	316	456	594	336
\$2,243,666	\$229,006	\$79,577	\$114,661	\$6,548	\$137,994	\$174,245	\$263,827	\$109,604
18,875	1,176	430	1,083	156	590	1,077	3,251	851
\$5,029,131	\$329,190	\$80,802	\$198,184	\$41,563	\$226,586	\$212,731	\$859,899	\$157,594
4,510	73	261	249	1	10	300	379	140
\$683,290	\$15,484	\$26,342	\$28,188	\$100	\$1,760	\$43,345	\$57,772	\$18,947
4,732	461	364	465	11	323	412	532	334
4,767	476	368	480	11	300	417	583	333
4,722	483	341	474	11	334	426	612	337
4,695	481	342	489	11	326	422	604	339
4,741	496	347	488	12	323	425	603	343
4,738	472	343	495	15	321	422	607	343
4,672	408	342	433	16	323	486	586	333
4,718	461	358	487	18	315	486	579	334
4,749	465	373	488	18	319	481	613	329
4,834	469	400	487	17	294	486	609	340
4,867	469	404	478	14	316	485	579	336
4,861	463	422	472	14	298	464	571	331
18,917	1,183	431	1,126	93	589	1,047	3,153	820
19,043	1,196	428	1,137	93	566	1,057	3,253	829
18,909	1,193	425	1,126	112	598	1,062	3,372	846
18,902	1,193	425	1,135	122	614	1,070	3,349	856
18,864	1,188	416	1,113	142	593	1,058	3,346	860
18,728	1,154	405	1,091	157	599			

TABLE 6.—HOSIERY AND KNIT GOODS—

	New Jersey.	New York.	North Carolina.	Ohio.
Machinery—Continued.				
82 Spindles, total number.....	9,462	226,343	13,264	5,484
83 Producing, number.....	9,462	225,237	13,264	5,484
84 Mule, number.....	9,462	194,985	13,264	5,484
85 Woolen.....	9,462	146,591		5,484
86 Worsted.....				
87 Cotton.....		48,394	13,264	
88 Frame, number.....		30,252		
89 Woolen.....		1,920		
90 Worsted.....				
91 Cotton.....		28,332		
92 Doubling and twisting, number.....		1,106		
93 Woolen.....		224		
94 Worsted.....				
95 Cotton.....		882		
96 Knitting machines, number.....	1,345	12,666	3,043	2,308
97 Spring-beard needle—				
98 Flat, ribbed.....	48	642	1	13
99 Flat, plain.....	19	292	20	42
100 Full-fashioned flat, ribbed.....	86	12		
101 Full-fashioned flat, plain.....	238	67		1
102 Circular, ribbed.....	12	173	10	30
103 Circular, plain.....	55	2,932	1	20
104 Circular hosiery, automatic.....	60	68	63	7
Lamb and other variety, hand.....	13	79		
105 Latch needle—				
106 Flat, ribbed.....	126	525	23	63
107 Flat, plain.....	24	420	240	6
108 Full-fashioned flat, ribbed.....	10	407		35
109 Full-fashioned flat, plain.....	1	48		20
110 Circular, ribbed.....	420	4,981	829	544
111 Circular, plain.....	3	549	84	264
112 Circular hosiery, automatic.....	207	238	1,753	167
113 Lamb and other variety, hand.....	23	1,233	19	1,096
114 Miscellaneous expenses, total.....	\$121,068	\$3,132,492	\$140,215	\$298,296
115 Rent of works.....	\$4,406	\$148,745	\$1,825	\$32,175
116 Taxes.....	\$6,426	\$116,103	\$9,644	\$6,564
Rent of offices, interest, insurance, and all other sundry expenses not hitherto included.....	\$108,836	\$2,661,089	\$120,120	\$242,389
117 Contract work.....	\$1,400	\$206,555	\$8,626	\$17,168
118 Materials used, aggregate cost.....	\$1,379,513	\$28,143,434	\$1,394,811	\$2,177,368
119 Principal materials, total cost.....	\$1,260,614	\$25,616,505	\$1,255,587	\$2,052,119
120 Purchased in raw state.....	\$124,531	\$5,113,728	\$236,118	\$252,432
121 Purchased in partially manufactured form.....	\$1,136,083	\$20,502,777	\$1,019,469	\$1,799,687
122 Fuel.....	\$21,310	\$389,309	\$45,880	\$15,391
123 Rent of power and heat.....	\$1,056	\$76,029	\$1,471	\$10,070
124 Mill supplies.....	\$6,426	\$192,387	\$13,876	\$13,780
125 All other materials.....	\$80,431	\$1,738,638	\$72,730	\$63,788
126 Freight.....	\$9,676	\$130,566	\$5,267	\$22,220
127 Products, total value.....	\$2,539,178	\$46,108,600	\$2,483,827	\$3,997,047
128 Power:				
129 Total horsepower.....	21	224	40	25
Owned—	1,188	26,658	2,323	1,302
Engines—				
130 Steam—				
131 Number.....	19	155	39	12
Horsepower.....	837	16,015	1,789	702
Gas and gasoline—				
132 Number.....	4	25		4
133 Horsepower.....	43	141		79
Water wheels—				
134 Number.....	2	78	5	2
135 Horsepower.....	150	6,839	285	101
Water motors—				
136 Number.....				
137 Horsepower.....				
Electric motors—				
138 Number.....	13	112	23	8
139 Horsepower.....	115	1,348	175	81
Rented—				
Electric motors—				
140 Number.....	6	115	2	22
141 Horsepower.....	43	2,028	30	339
142 Other kind, horsepower.....		287	44	
143 Furnished to other establishments, horsepower.....	1	27		15

TABLE 7.—HOSIERY AND KNIT GOODS—DETAILED SUMMARY OF MATERIALS AND PRODUCTS, UNITED STATES
TOTALS: 1905.

Materials used, total cost.....		Products—Continued.	
Cotton—		Hosiery and knit goods—Continued.	
Pounds.....	50,586,760	Hose and half hose—Continued.	
Cost.....	\$5,869,317	Merino or mixed—	
Sea-island—		Half hose—	
Pounds.....	369,200	Dozen pairs.....	1,611,066
Cost.....	\$43,195	Value.....	\$2,214,678
Other domestic—		Hose—	
Pounds.....	48,299,443	Dozen pairs.....	746,226
Cost.....	\$5,483,201	Value.....	\$1,182,164
Egyptian and other foreign—		Woolen—	
Pounds.....	1,918,117	Half hose—	
Cost.....	\$342,921	Dozen pairs.....	1,309,876
Wool—		Value.....	\$3,402,406
Foreign, in condition purchased—		Hose—	
Pounds.....	1,130,433	Dozen pairs.....	1,083,783
Cost.....	\$543,418	Value.....	\$2,205,080
Domestic, in condition purchased—		Silk hose—	
Pounds.....	16,170,183	Dozen pairs.....	42,065
Cost.....	\$5,610,440	Value.....	\$522,303
Foreign and domestic, scoured, pounds.....	13,909,144	Shirts and drawers—	
Animal hair—		All-cotton—	
Camel, alpaca, and vicuña—		Dozens.....	17,107,958
Pounds.....	5,000	Value.....	\$39,658,762
Cost.....	\$2,500	Merino or mixed—	
Mohair—		Dozens.....	2,113,810
Pounds.....	82,502	Value.....	\$13,031,754
Cost.....	\$52,252	All-wool—	
Buffalo, cow, and other animal hair—		Dozens.....	485,328
Pounds.....	2,000	Value.....	\$3,647,934
Cost.....	\$125	Silk or silk mixed—	
Materials purchased in partially manufactured form—		Dozens.....	16,045
Wool waste and noils—		Value.....	\$305,410
Pounds.....	6,020,459	Combination suits—	
Cost.....	\$1,711,669	All-cotton—	
Camel, alpaca, and vicuña noils—		Dozens.....	1,260,301
Pounds.....	69,023	Value.....	\$4,478,664
Cost.....	\$31,757	Merino or mixed—	
Mohair noils—		Dozens.....	105,242
Pounds.....	96,000	Value.....	\$1,199,949
Cost.....	\$42,500	All-wool—	
Tops—		Dozens.....	68,067
Pounds.....	182,149	Value.....	\$965,132
Cost.....	\$116,773	Silk or silk mixed—	
Shoddy—		Dozens.....	6,810
Pounds.....	7,489,358	Value.....	\$150,202
Cost.....	\$923,719	Leggings and gaiters—	
Yarns—		Dozen pairs.....	122,462
Cotton—		Value.....	\$619,998
Pounds.....	161,500,466	Gloves and mittens—	
Cost.....	\$34,372,910	Dozen pairs.....	2,260,508
Merino (cotton mixed)—		Value.....	\$5,556,260
Pounds.....	2,568,890	Hoods, scarfs, nubias, etc.—	
Cost.....	\$1,118,999	Dozens.....	589,315
Woolen—		Value.....	\$1,774,862
Pounds.....	4,839,343	Cardigan jackets, sweaters, fancy jackets, etc.—	
Cost.....	\$2,798,454	Dozens.....	811,629
Worsted—		Value.....	\$8,345,369
Pounds.....	8,789,570	Shawls—	
Cost.....	\$7,457,690	Dozens.....	435,306
Silk—		Value.....	\$1,293,348
Pounds.....	170,258	Fancy knit goods, wristers, etc.—	
Cost.....	\$785,899	Dozens.....	582,275
Spun silk—		Value.....	\$2,118,842
Pounds.....	150,413	Boot and shoe linings—	
Cost.....	\$414,360	Square yards.....	11,768,961
Linen—		Value.....	\$1,249,401
Pounds.....	55,392	Eider down—	
Cost.....	\$54,362	Square yards.....	4,843,939
Jute, ramie, and other vegetable fiber—		Value.....	\$1,018,981
Pounds.....	7,225	Jersey cloth and stockinette—	
Cost.....	\$1,862	Square yards.....	3,354,026
All other materials which are components of product, cost.....	\$5,631,618	Value.....	\$1,145,127
Soap—		Astrakhan—	
Pounds.....	5,681,055	Square yards.....	455,274
Cost.....	\$226,294	Value.....	\$354,316
Oil for preparing wool for cards and combs—		Partially manufactured products for sale—	
Gallons.....	264,003	Yarns—	
Cost.....	\$84,851	Cotton—	
Chemicals and dyestuffs.....	\$1,677,252	Pounds.....	3,304,615
Fuel.....	\$1,283,018	Value.....	\$654,234
Rent of power and heat.....	\$202,030	Merino (cotton mixed)—	
Mill supplies.....	\$541,174	Pounds.....	196,037
All other materials.....	\$4,564,632	Value.....	\$100,745
Freight.....	\$473,907	Woolen—	
Cotton yarn made in mill for use therein, pounds.....	39,954,890	Pounds.....	62,653
Products, total value.....	\$136,558,139	Value.....	\$14,268
Hosiery and knit goods—		Worsted—	
Hose and half hose—		Pounds.....	232,869
Cotton—		Value.....	\$230,836
Half hose—		All other products.....	\$4,322,818
Dozen pairs.....	15,223,243	Amount received for contract work.....	\$208,167
Value.....	\$11,821,830		
Hose—			
Dozen pairs.....	24,169,804		
Value.....	\$22,764,799		

WOOL MANUFACTURES

WOOL MANUFACTURES.

By EDWARD STANWOOD, Expert Special Agent.

INTRODUCTION.

During the period of five years between the censuses of 1900 and 1905 the industries which use wool as the chief raw material enjoyed as uninterrupted a season of prosperity as they have ever had. Many circumstances conspired to produce this result. The country as a whole was prosperous; labor was well employed; trade of all sorts was active; and from these conditions it naturally followed that the demand for woollen goods—clothing, hats, carpets, etc., articles of universal use—was large, and that payment for them was prompt. Again, the element of disturbance which has often in the past ruined a promising situation—the pendency of a tariff revision, or the actual occurrence of such a revision—was conspicuously absent. No tariff change has taken place since 1897, and manufacturers have had time to adjust their operations to a fairly stable situation. Moreover, to a greater extent than ever before manufacturers have been in almost exclusive possession of the home market, and have therefore been exempt from the injurious effects of a large but fluctuating importation of foreign goods. In 1896-97, the year of greatest importation of wool manufactures, the value of imports entered for consumption was \$54,127,207. If we assume that the value of the home production was \$290,000,000—it was \$270,500,000 in 1890 and \$297,000,000 in 1900—the importation represented nearly 16 per cent of the domestic consumption in that year—less than one-sixth of the total. During the five years 1901 to 1905, inclusive, the average annual value of importations of wool manufactures was \$17,332,537. In the last year of the series, 1904-5, which may be assumed to correspond with the census year, the importations were valued at \$18,021,041. The value of American manufactures of wool, as reported at the census of 1905, was \$380,934,003. It thus appears that of a total of almost \$399,000,000 worth of wool manufactures marketed in that year, less than 5 per cent was of foreign production.

From a rapid survey of the course of trade it would not be an accurate statement to say that all conditions were favorable to the industry during the whole period under consideration. The year ending May 31, 1900, which was the year reported at the Twelfth Census, was

decidedly unfavorable, as was fully stated in the report upon that enumeration. The extremely depressed condition of the entire trade continued through the whole of the calendar year 1900. But at the beginning of 1901 it began to be recognized that the stock of goods on hand was very small, and a strong and steady demand for goods of all kinds set in. The improvement was a lasting one, for the demand continued and all through the year the mills were well supplied with orders, so that it could be said at the end of the year that the season was the best which the manufacturers had enjoyed for a long time. But the year 1902 was even more prosperous in all branches of the trade, and this condition lasted until the early summer of 1903, when the situation became quite unsatisfactory, particularly in worsteds. It was at this time that apprehension was first aroused as to the declining supply of wool, and yet the market price did not advance materially until the following year—1904. By the middle of the year the shortage of wool became fully apparent, and a sensational advance in price began. The evil of the time affected chiefly the worsted and the carpet branches of the industry, but the cause was different in the two cases.

The manufacture of worsted was greatly affected by the enormous decrease of wool production in Australia which, although in progress for several years, culminated about this time. The market became almost bare of supplies, the price of Australian wool advanced rapidly, and of course other varieties sympathized with and shared in the advance. This would not have been a serious calamity to worsted manufacturers if they had been able to obtain commensurate prices for their yarns and fabrics; but unfortunately the market for goods did not respond to the market for wool, and the business suffered a period of depression.

The difficulties experienced by carpet manufacturers were mainly if not wholly caused by the war between Japan and Russia. The belligerent powers placed large orders in England for goods for their armies—goods that could be and were made with a large admixture of coarse wool ordinarily devoted exclusively to the weaving of carpets. The result was that the price of such wools was also greatly enhanced. The situation will be clearly understood from the facts presented

in the following tabular statement, which shows the quantity, value, and average value per pound of the principal variety of wool used in the carpet manufacture, Class 3, divided according to the terms of the tariff act of 1897. Wool of Class 3, "not on the skin," valued at 12 cents or less per pound pays a duty of 4 cents per pound; if valued at more than 12 cents per pound the duty is 7 cents per pound. The importations of the principal kind of Class 3 wool, "not on the skin," for the years 1901-2 to 1904-5, inclusive (the first six months of the last year formed a part of the census year), were as follows:

YEAR.	VALUED AT 12 CENTS OR LESS PER POUND.			VALUED AT MORE THAN 12 CENTS PER POUND.		
	Quantity (pounds).	Value.	Average per pound (cents).	Quantity (pounds).	Value.	Average per pound (cents).
1901-2.....	96,482,442	\$8,813,910	9.1	1,115,733	\$162,512	14.6
1902-3.....	113,588,436	10,847,957	9.6	2,900,743	463,665	15.8
1903-4.....	85,475,084	8,907,288	10.4	19,167,061	2,986,671	15.6
1904-5.....	75,922,101	7,674,061	10.1	33,028,110	5,887,706	17.8

It will be seen that the amount of wool upon which the higher duty was levied formed about 1 per cent of the total in Class 3 in the first year and 3 per cent in the second, but in the third year it formed 18 per cent and in the last year of the series more than 30 per cent. The situation involved a double hardship for the carpet industry, for not only was the actual price of wool higher but the advance in price carried over a large part of the staple into the class on which the higher duty was levied. Taking the two classes together, 97,598,175 pounds were imported in 1901-2 at a cost and duty amounting to \$12,913,821, an average of 13.2 cents; 116,549,184 pounds in 1902-3 for a cost and duty of \$16,067,411, or 13.8 cents; 104,642,145 pounds in 1903-4 for \$16,654,656, or 15.9 cents; 108,950,211 pounds in 1904-5 for \$18,910,619, or 17.4 cents. An advance of more than 4 cents a pound in the amount paid for raw material, almost 32 per cent, caused the difficulties in the carpet industry.

The situation improved for the worsted manufacturers toward the close of the year 1904, but the improvement seems to have been partially at the expense of the manufacturers of woolen goods. The gradual change that has been for some time taking place in the popular taste, which tends more and more toward worsteds in preference to woolens, caused such a stagnation of the trade in woolen goods that many manufacturers have begun to buy yarns and to weave dress goods instead of the fabrics for which their mills were constructed and which they have produced hitherto.

It will thus be seen that the year covered by the census statistics (1904) was in some respects prosperous, in other respects the conditions were adverse. Upon

the whole it may be classed as a year rather above the average, but not greatly so. It should always be borne in mind in considering the comparisons deduced from the accompanying tables that the year ending May 31, 1900—the year of the Twelfth Census—was one in which the situation was decidedly unfavorable.

SCOPE OF THE INQUIRY.

In the statistics presented at all censuses prior to 1890 the facts relating to hosiery and knit goods were associated with wool manufactures, in many cases in such a way that the two industries were treated as one. There was a certain amount of reasonableness in the method, inasmuch as the material used by the manufacturers of hosiery at that time was wool, by a great preponderance. But the two practices of mixing cotton with wool in the knitting of underwear, and of using cotton exclusively for a large part of the production, rendered the early classification inexpedient. At the census of 1890 there was a differentiation to the extent of making hosiery and knit goods a separate division of the wool industry, and at the census of 1900 a still further separation was made, although the first table of the report upon wool manufactures included both divisions. In this report these two branches of textile manufacture are treated as two separate and distinct divisions, so that none of the tables here presented are based upon returns from any establishment whose chief product is hosiery or knit goods. The propriety of this treatment will be evident when it is stated that of the materials reported, for the census of 1905, as consumed in hosiery and knit goods establishments, 47,090,738 pounds represented raw wool, mohair, woolen, worsted, and merino yarn, shoddy, and wool waste and noils, valued at \$20,216,641; whereas 212,087,226 pounds represented raw cotton and cotton yarns, valued at \$40,242,227. Clearly mills which use from four to five times as much cotton in weight as of wool, and twice as much cotton in value, are not properly classified as engaged in wool manufacture.

This report, then, covers the wool manufacture proper. It adopts the same grouping as that which was observed in the two preceding Census reports, namely, worsted goods; woolen goods; carpets and rugs, other than rag; felt goods; and wool hats. There are also separate reports upon wool scouring and wool pulling, which were first made the subject of special inquiry in 1900; on the shoddy manufacture; and on felt hats, heretofore reported under the head of fur hats.

Table 1 presents the leading facts relating to the wool manufacture as reported at the censuses of 1860 to 1905.

TABLE 1.—WOOL MANUFACTURES—COMPARATIVE SUMMARY, WITH PER CENT OF INCREASE: 1860 TO 1905.

	CENSUS.						PER CENT OF INCREASE.				
	1905	1900	1890	1880	1870	1860 ¹	1900 to 1905	1890 to 1900	1880 to 1890	1870 to 1880	1860 to 1870
Number of establishments.....	1,213	1,414	1,693	2,330	3,208	1,476	214.2	216.5	227.3	227.4	117.3
Capital.....	\$370,861,691	\$310,179,749	\$245,886,743	\$143,512,278	\$121,451,059	\$38,814,422	19.6	26.1	71.3	18.2	212.9
Salaries officials, clerks, etc., number.....	5,616	4,495	3,652	(²)	(²)	(²)	24.9	23.1	.....	.....	.....
Salaries.....	\$8,177,345	\$6,455,495	\$4,057,695	(²)	(²)	(²)	26.7	59.1	.....	.....	.....
Wage-earners, average number.....	179,976	159,108	154,271	132,672	105,071	50,419	13.1	3.1	16.3	26.3	108.4
Total wages.....	\$70,797,524	\$57,933,817	\$54,339,775	\$40,687,612	\$35,928,150	\$11,699,630	22.2	6.6	33.6	13.2	207.1
Men 16 years and over.....	94,841	83,371	78,550	67,942	53,400	29,852	13.8	6.1	15.6	27.2	78.9
Wages.....	\$44,237,484	\$36,412,872	\$33,702,231	(²)	(²)	(²)	21.5	8.0	.....	.....	.....
Women 16 years and over.....	72,222	64,141	64,944	49,107	39,150	20,567	12.6	21.2	32.2	25.4	90.4
Wages.....	\$23,992,908	\$19,549,423	\$18,883,174	(²)	(²)	(²)	22.7	3.5	.....	.....	.....
Children under 16 years.....	12,913	11,596	10,777	15,623	12,621	(²)	11.4	7.6	31.0	24.8	.....
Wages.....	\$2,567,132	\$1,971,522	\$1,754,370	(²)	(²)	(²)	30.2	12.4	.....	.....	.....
Miscellaneous expenses.....	\$21,588,465	\$17,329,932	\$15,622,263	(²)	(²)	(²)	24.6	10.9	.....	.....	.....
Cost of materials used.....	\$242,561,096	\$181,159,127	\$167,233,987	\$149,160,600	\$124,318,792	\$43,447,048	33.9	8.3	12.1	20.0	186.1
Value of products.....	\$380,934,003	\$296,990,484	\$270,527,511	\$238,085,686	\$199,257,262	\$73,454,000	28.3	9.8	13.6	19.5	171.3

¹ Carding mills were not included in 1860.² Decrease.³ Includes proprietors and firm members, with their salaries; number only reported in 1900 and 1905, but not included in this table.⁴ Not reported separately.⁵ Not reported.

The whole number of establishments reported for 1905 is 1,213, as compared with 1,414 at the Twelfth Census. The 1905 total includes 792 woolen mills, 226 worsted mills, 139 carpet establishments, 39 establishments making felt goods, and 17 wool hat establishments. The reduction of 201 in number is wholly accounted for by a decrease in the number of woolen mills, from 1,035 to 792, caused largely no doubt by the omission of custom carding mills at this census, and by a moderate consolidation of establishments. The worsted mills have increased from 186 to 226—a striking illustration of the favor in which worsted goods are now regarded. The changes in the number of other classes of establishments are unimportant. Each item in the above summary, except the number of establishments, exhibits an increase from 1900 to 1905, and in almost every case the rate of increase in the five years is greater than in the ten years from 1890 to 1900.

BANK OF STATES ACCORDING TO VALUE OF PRODUCTS.

Table 2 shows the rank at the last three census enumerations of the 10 states returning the greatest value of products at the census of 1905.

TABLE 2.—Wool manufactures—rank of ten states leading in aggregate value of products in 1905, distributed by industries: 1890 to 1905.¹

STATE.	1905		1900		1890	
	Rank.	Value of products.	Rank.	Value of products.	Rank.	Value of products.
TOTAL.						
Massachusetts.....	1	\$109,027,873	1	\$81,041,537	2	\$67,599,321
Pennsylvania.....	2	83,054,561	2	71,878,503	1	72,393,182
Rhode Island.....	3	52,640,763	3	38,671,879	3	32,204,629
New York.....	4	38,880,819	4	30,813,339	4	28,563,569
Connecticut.....	5	18,704,845	5	12,637,032	5	13,733,895
New Jersey.....	6	17,251,631	6	13,793,144	7	8,528,070
Maine.....	7	17,579,590	7	13,412,784	8	7,521,317
New Hampshire.....	8	14,284,480	8	7,624,062	6	10,769,240
Vermont.....	9	4,698,405	10	2,572,646	10	2,723,683
Ohio.....	10	1,382,874	9	1,321,751	12	1,920,002

¹ This table does not include the value of products of states having less than 3 establishments in the various subdivisions; some of the totals, therefore, are less than the correct amounts.

TABLE 2.—Wool manufactures—rank of ten states leading in aggregate value of products in 1905, distributed by industries: 1890 to 1905¹—Continued.

STATE.	1905		1900		1890	
	Rank.	Value of products.	Rank.	Value of products.	Rank.	Value of products.
WORSTED GOODS.						
Massachusetts.....	1	\$51,973,944	1	\$40,557,363	2	\$21,933,775
Rhode Island.....	2	44,477,596	2	33,341,329	1	22,319,684
Pennsylvania.....	3	35,683,015	3	22,109,392	3	17,861,776
New Jersey.....	4	11,925,126	4	6,823,721	7	2,058,662
New York.....	5	7,858,622	5	5,958,259	4	5,763,102
Connecticut.....	6	4,316,534	6	4,539,814	5	4,651,402
Maine.....	7	3,609,990	8	1,779,552	8	(²)
New Hampshire.....	8	3,270,498	7	(²)	6	2,764,976
Ohio.....	9	(²)	9	(²)	10	(²)
WOOLEN GOODS.						
Massachusetts.....	1	44,653,940	1	30,888,104	1	35,771,161
Pennsylvania.....	2	19,222,465	2	25,389,344	2	29,878,010
Maine.....	3	13,969,600	3	11,635,232	6	7,521,317
Connecticut.....	4	11,166,965	4	8,097,215	4	9,082,493
New Hampshire.....	5	11,013,982	5	7,624,062	5	8,004,264
Rhode Island.....	6	8,163,167	7	5,330,550	3	9,884,945
New York.....	7	7,384,755	6	6,715,005	2	5,188,020
Vermont.....	8	4,698,405	8	2,572,646	10	2,723,683
New Jersey.....	9	3,577,674	9	4,755,393	7	5,652,166
Ohio.....	13	1,382,874	13	1,321,751	13	1,513,302
CARPETS AND RUGS, OTHER THAN BAG.						
Pennsylvania.....	1	27,120,311	1	23,113,058	1	22,886,416
New York.....	2	19,404,133	2	15,029,218	2	14,606,116
Massachusetts.....	3	9,713,978	3	6,966,237	3	7,275,009
Connecticut.....	4	3,221,346	5	(²)	4	(²)
New Jersey.....	5	1,748,831	4	1,522,827	5	817,242
FELT GOODS.						
New York.....	1	3,178,768	1	1,734,136	1	1,517,199
Massachusetts.....	2	2,686,011	2	1,826,830	2	918,890
New Jersey.....	3	(²)	3	691,203	4	(²)
Ohio.....	4	(²)	7	(²)	3	406,700
Maine.....	5	(²)	8	(²)	(²)	(²)
Pennsylvania.....	6	370,342	9	160,633	5	322,800
Connecticut.....	7	(²)	4	(²)	(²)	(²)
WOOL HATS.						
New York.....	1	1,054,541	1	1,376,721	2	1,489,132
Pennsylvania.....	2	658,428	2	1,106,076	3	1,444,180
Massachusetts.....	3	(²)	3	1,103,003	1	1,700,486
New Jersey.....	4	(²)	4	(²)	.....	(²)

¹ This table does not include the value of products of states having less than 3 establishments in the various subdivisions; some of the totals, therefore, are less than the correct amounts.

² The value of products for this state in this industry can not be shown separately.

³ Rank can not be determined.

⁴ Not reported.

As was the case in 1900, Massachusetts held the first rank in the total value of products for all branches, with an aggregate of \$109,027,873 (see note 1 of Table 2). Pennsylvania, which was the leader in 1890, dropped to the second place in 1900, and still occupies it, with an aggregate value of \$83,054,561. The increase of almost \$28,000,000 in Massachusetts is more than double the increase for Pennsylvania. These 2 states now report a combined aggregate value of more than \$192,000,000, out of a total for the whole country of nearly \$381,000,000, or slightly more than one-half. Rhode Island is third, New York fourth, and Connecticut fifth; they occupied the same positions in 1890 and 1900. These 3 states report a considerable increase in the value of products, but the value reported by Rhode Island is still less than half that of Massachusetts, and New York does not yet reach one-half the product of Pennsylvania. New Jersey retains the sixth place and Maine the seventh. New Hampshire is eighth, as in 1900, while Vermont and Ohio have interchanged rank, Vermont now being ninth. The 10 leading states in 1900 produced 94.6 per cent of the value of products of all wool manufactures of the country, and the 10 leading states in 1905 produced 95 per cent of the total, a striking illustration of local concentration.

The relative rank of the states in the several branches of the manufacture differs from that in the industry as a whole. The rank in the worsted goods branch has not changed since 1900, except that Maine and New Hampshire, now seventh and eighth, respectively, were reversed in 1900. In the production of woolen goods the changes are not numerous. Rhode Island is sixth and New York seventh, reversing the order of 1900, and Vermont and New Jersey, eighth and ninth, respectively, have also exchanged places since 1900. In the manufacture of carpets and rugs Pennsylvania, first, and New York, second, distance all competitors, as do New York, first, and Massachusetts, second, in the production of felt goods, and New York and Pennsylvania in the manufacture of wool hats.

The 3 cities of Philadelphia, Pa., Lawrence, Mass., and Providence, R. I., are still, as they have been for many years, the leading centers of production in wool manufactures, and both in 1900 and 1905 they stood in the order named. Moreover, each of these cities has very largely increased its production during the last five years. The total value of products of the 3 cities, as shown in the following tabular statement, amounts to \$120,244,118 in 1905, which is 31.6 per cent of the entire value of products of all the establishments reporting.

Rank of three leading cities according to value of products: 1890 to 1905.

	1905		1900		1890	
	Rank.	Value of products.	Rank.	Value of products.	Rank.	Value of products.
Philadelphia, Pa.	1	\$64,666,335	1	\$56,672,007	1	\$58,780,875
Lawrence, Mass.	2	32,476,233	2	25,584,744	3	10,431,192
Providence, R. I.	3	23,101,550	3	18,375,776	2	17,740,431

OWNERSHIP OF MILLS.

It was noted in the report at the census of 1890 that the manufacture of wool has tended far more than that of cotton to remain in the hands of individual owners and of firms, and not to fall under the management of corporations, large or small. But it was added that the tendency even then was, and had been for some years, in the direction of the corporate form of management. The number of establishments under each form of ownership was not disclosed by the statistics at the Eleventh Census, but in 1900 there were 528 establishments operated by individuals, 429 by firms and partnerships, 456 by corporations, and 1 by miscellaneous. At the present census 333 are operated by individuals, 311 by firms, 567 by corporations, and 2 by miscellaneous. The per cent each class forms of the total is indicated in the following tabular statement:

	1905	1900
Total.....	100.0	100.0
Individuals.....	27.5	37.3
Firms.....	25.6	30.3
Corporations.....	46.7	32.3
Miscellaneous.....	0.2	0.1

No doubt a large part of this change is due to the disappearance of many small carding and other mills from the list. But in the worsted branch of the industry the sole cause is the construction of large establishments under corporate management. In 1900 there were 43 worsted mills owned by individuals. The same number is now reported. Of mills owned by partnerships, the number has decreased from 60 to 52, but of those operated by incorporated companies, there is an increase from 83 to 131. Of carpet establishments, the whole number shows an increase from 133 to 139. The corporate establishments have increased from 35 to 49, and the number under both the other forms of management has diminished slightly.

CAPITAL.

The leading facts relative to the capital employed in the wool manufactures of the country are presented in Table 3.

TABLE 3.—*Capital, with per cent of increase: 1890 to 1905.*

	CENSUS.			PER CENT OF INCREASE.	
	1905	1900	1890	1900 to 1905	1890 to 1900
Aggregate.....	\$370,861,691	\$310,179,749	\$245,886,743	19.6	26.1
Total fixed capital.....	172,183,291	125,226,619	106,146,810	37.5	18.0
Land.....	25,745,617	17,936,483	12,682,857	43.5	41.4
Buildings.....	52,232,351	38,074,293	33,950,456	37.2	12.1
Machinery, tools, and implements.....	94,205,323	69,215,841	59,513,497	36.1	16.3
Cash on hand, unsettled ledger accounts, stock on hand, etc.....	198,678,400	184,953,130	139,739,933	7.4	32.4

The gross capital is \$370,861,691, an increase in five years of \$60,681,942, as compared with an increase of \$64,293,006 in the ten years preceding. By far the largest part of the increase, it will be observed, is in fixed capital, for the active capital consisting of the items cash on hand, unsettled ledger accounts, etc., although the larger of the two divisions, contributed less than 23 per cent of the total increase. The explanation is obvious when the condition of the industry for 1900 and 1905 is considered. In the earlier year the stock on hand unsold and the unsettled accounts were, in their magnitude, an unpleasant reminder of the depressed state into which the wool manufacture had fallen. The aggregate of the items making up the total of active capital increased more than \$45,000,000 in the decade from 1890 to 1900, whereas the fixed capital increased only about \$19,000,000. The improved conditions of the last five years reversed the order of increase. The value of the land occupied shows the large increase of 43.5 per cent; of buildings, 37.2 per cent; and of machinery, etc., 36.1 per cent; but the increase in the item which includes not only working capital but unsold product and delayed collections is but 7.4 per cent.

In 1890 the capital of woolen mills proper greatly exceeded that of worsted mills, the capital of the one having been, in round numbers, \$131,000,000; of the other, \$68,000,000. In the ensuing decade the investment in the worsted manufacture was so large that the mills engaged in that industry reported a capital of \$132,168,110, as against \$124,386,262 for woolen mills. The capital now reported is \$162,464,929 for the worsted, and \$140,302,488 for the woolen industry.

In 1890 the investment of worsted manufacturers in land, buildings, and machinery was less than \$28,000,000. It is now more than \$73,000,000, having increased nearly twofold. On the other hand, the corresponding fixed capital of woolen manufactures, which was nearly \$58,000,000 in 1890, is still less than \$67,000,000. These facts indicate how the popular taste has impressed itself on the entire industry in the last fifteen years. The buildings occupied for the manufacture of worsteds were valued at less than \$8,000,000 in 1890, at more than \$13,000,000 in 1900, and now at more than \$20,000,000. The figures relating to active capital are equally significant. Although there has been so great an expansion of worsted manufactures, the active capital of the mills of that department, which was \$40,000,000 in 1890 and \$85,000,000 in 1900, is now reported at only \$89,000,000. For the reasons already given this small increase, when there has been so great an increase of business, is to be regarded as an evidence of strength rather than of weakness.

The statistics of the other branches of the industry present nothing startling. The capital employed in the manufacture of carpets and rugs was \$38,000,000 in 1890, \$44,000,000 in 1900, and is now nearly \$57,000,000, showing a steady and healthy growth of the business. It may be that the increase of active capital from \$24,500,000 in 1900 to nearly \$30,000,000 in 1905 reflects the situation, almost resembling a blight, which so seriously affected the carpet industry toward the end of the census year. The capital of felt mills shows a satisfactory increase; that of wool hats exhibits a decrease, in continuation of that which was noted in 1900.

Table 46, at the end of this report, shows the capital in detail for each division of the combined industry for the census of 1905.

EMPLOYEES AND WAGES.

The total number of salaried employees has increased as well as the amount of their salaries, but the numbers present no matter of special interest.

The total number of wage-earners has increased from 159,108 to 179,976, or 13.1 per cent—a very much higher rate of increase than that which took place between 1890 and 1900. The total amount of wages has increased at a higher percentage, namely, 22.2, which may indicate either an increase in the wages of those already employed or the employment of higher skilled and better paid labor. As a matter of fact, it is believed that both of these factors contribute to the result, but no reasonable attempt can be made to establish an average rate of wages, inasmuch as that

average would include skilled and unskilled alike, and could not be other than misleading.

Table 4 shows the average number of wage-earners and the proportion of men, women, and children at the last four enumerations:

TABLE 4.—Average number of wage-earners, and proportion of men, women, and children: 1880 to 1905.

	Cen- sus.	Average number.	Per cent of total.
Total.....	1905 1900 1890 1880	179,976 159,108 154,271 131,059	100.0 100.0 100.0 100.0
Men 16 years and over.....	1905 1900 1890 1880	94,841 83,371 78,550 66,347	52.7 52.4 50.9 50.6
Women 16 years and over.....	1905 1900 1890 1880	72,222 64,141 64,944 49,104	40.1 40.3 42.1 37.5
Children under 16 years.....	1905 1900 1890 1880	12,913 11,596 10,777 15,608	7.2 7.3 7.0 11.9

Although the proportions remain nearly constant, the gradual tendency is toward an increase in the relative number of men and a decrease in the relative number of women and children. The large decrease in child labor between 1880 and 1890 was accompanied by an increase in the number of women employed; but otherwise the tendency above noted, though slow, is uninterrupted. It may be observed that there is a similar tendency, still more marked, in the changing proportion of men, women, and children in the cotton industry, and undoubtedly the explanation is the same in both cases—that the increase in speed and efficiency of modern machinery imposes too heavy a burden upon the muscles and nerves of women and children, and that it is found more profitable to employ men.

Although the worsted industry in the matter of capital, cost of materials, and value of products has surpassed the woolen branch, it has not yet overtaken the woolen branch in the matter of wage-earners and their wages, but during the past five years the average number of wage-earners in worsted mills has increased from 57,008 to 69,251, whereas the number in woolen mills has increased only from 68,893 to 72,747. The proportion of women and children employed in worsted mills is very much greater than the corresponding proportion in woolen mills.

POWER.

The power reported by all branches of the wool industry at the census of 1905 was 346,500 horsepower, an increase of 72,238 horsepower during the five-year period, against an increase of 63,620 horsepower during the preceding decade. The percentage of increase was 26.3. The total horsepower for each branch of the

wool industry compared with the average number of wage-earners is shown in Table 5.

TABLE 5.—Horsepower, number of wage-earners, and average horsepower per wage-earner, by industries: 1880 to 1905.

INDUSTRY.	Year.	Total horse- power.	Average number of wage- earners.	Horse- power per wage- earner.
Total.....	1905 1900 1890 1880	346,500 274,262 210,642 140,058	179,976 159,108 154,271 131,059	1.93 1.72 1.37 1.07
Worsted goods.....	1905 1900 1890 1880	150,620 97,383 57,111 16,437	69,251 57,008 42,978 18,639	1.89 1.71 2.62 0.88
Woolen goods.....	1905 1900 1890 1880	163,793 139,645 122,501 106,507	72,747 68,893 76,915 85,202	2.25 2.03 1.59 1.25
Carpets and rugs, other than rag...	1905 1900 1890 1880	39,239 26,932 22,684 10,491	33,221 28,411 28,736 20,299	1.18 0.95 0.79 0.52
Felt goods.....	1905 1900 1890 1880	10,936 7,973 5,051 2,631	3,254 2,688 2,142 1,488	3.36 2.97 2.36 1.77
Wool hats.....	1905 1900 1890 1880	1,912 2,329 3,295 3,992	1,503 2,108 3,500 5,431	1.27 1.10 0.94 0.74

For the period 1900 to 1905 the largest actual increase in power—33,237 horsepower, or 46 per cent of the whole increase—was reported by the worsted manufacturers; the woolen industry added 24,148 horsepower. In percentage of increase the carpet mills show the largest gain, 45.7 per cent. The wool hat manufacture alone shows a decrease, as it does in the magnitude of its operations generally.

The figures for the kinds of power, shown in Table 46 and compared with the 1900 totals, present some interesting facts. Waterpower has increased from 79,056 to only 79,354 horsepower, whereas steampower has increased from 186,252 to 229,246 horsepower. In the worsted industry there was an increase of 21,931 in the horsepower obtained from steam and a decrease of 3,657 in that obtained direct from water. In the woolen branch there was an increase of 14,007 in the horsepower derived from steam, and of 3,573 in the horsepower derived from water. The rapidly extending use of electricity in the woolen industry as a whole is indicated by an increase in the horsepower owned and rented from 7,495 in 1900 to 27,809 in 1905. Although the numerical addition is only 20,314 horsepower, as compared with 42,994 horsepower added to steam plants, the rapidity of the introduction of electric power is highly significant. Of the increase in this kind of power, 10,551 horsepower, or more than one-half, is to be credited to the worsted branch.

The conclusion to be drawn from the last column of Table 5, which shows the horsepower per wage-earner, is that the same influences which have been operating in the past are still potent. As machinery is made

more efficient a larger mechanical power comes under the control of a single workman. As compared with 1880 the horsepower assigned to each person employed has nearly doubled. In the case of worsted goods it has become more than twice what it was a quarter of a century ago.

MACHINERY.

One of the accurate tests of the growth of an industry like that of the wool manufacture is the amount of machinery employed. The following tabular statement shows the number of woolen cards, combing machines, spindles, and looms reported at each census from 1880 to 1905:

Machinery, by kinds: 1880 to 1905.

KIND.	CENSUS.				PER CENT OF INCREASE.		
	1905	1900	1890	1880	1900 to 1905	1890 to 1900	1880 to 1890
Woolen cards.....	5,968	6,605	7,015	6,989	19.6	15.8	0.4
Combing machines...	1,549	1,451	839	515	6.8	72.9	62.9
Spindles.....	4,021,098	3,511,099	2,793,147	2,111,973	14.5	25.7	32.3
Looms.....	77,985	74,190	69,658	57,297	5.1	6.5	21.6

¹ Decrease.

Notwithstanding the apparent decrease in the number of woolen cards, which was a feature also of the statistics of the Twelfth Census, it is not believed that there has actually been any considerable decrease. A partial explanation of this statement is that, in spite of the care that was exercised in 1900, it is believed that a certain number of worsted, shoddy, and cotton cards were reported as woolen at that time, whereas in the figures for 1905 all except woolen cards have been excluded. At the census of 1905, 2,298 worsted, shoddy, and cotton cards were reported, but the number of these is without significance in the consideration of machine capacity. The number of such cards which may have crept into the returns for 1900 was undoubtedly much less than the number just given. Another reason, also not significant, for the decrease is the disappearance from the statistics of many small custom carding mills. The number of combing machines has increased from 1,451 in 1900 to 1,549 in 1905, which is an increase at a very much slower rate than that between 1890 and 1900. The number of spindles and looms shows an increase at a higher yearly rate than during the preceding decade.

Cards.—Table 6 shows, by geographic divisions, the number of mills reporting cards and the number of sets of cards in each, for 1890, 1900, and 1905.

TABLE 6.—WOOL MANUFACTURES—NUMBER OF MILLS CLASSIFIED ACCORDING TO SETS OF CARDS, BY GEOGRAPHIC DIVISIONS: 1890 TO 1905.

DIVISION.	Census.	Number reporting sets of cards.	1 set.	2 sets.	3 sets.	4 sets.	5 sets.	6 sets.	7 sets.	8 sets.	9 sets.	10 to 15 sets.	15 to 20 sets.	20 sets and over.	Carding mills.
United States.....	1905	951	158	133	85	89	57	56	43	62	28	105	57	78	(¹)
	1900	976	139	119	76	81	46	51	34	40	22	69	31	37	231
	1890	1,468	347	221	131	107	66	80	36	58	22	106	44	57	193
New England states.....	1905	405	15	34	26	49	28	29	23	42	15	63	34	47	(¹)
	1900	344	13	25	25	46	25	24	19	30	15	46	25	20	31
	1890	504	47	49	44	53	34	39	26	33	16	72	26	37	28
Middle states.....	1905	282	41	43	30	24	16	17	10	12	11	32	20	26	(¹)
	1900	233	36	27	20	19	14	19	9	6	4	17	5	15	42
	1890	466	120	78	53	34	22	34	6	17	6	25	17	18	36
Southern states.....	1905	114	54	21	10	9	6	1	4	1	-----	2	3	3	(¹)
	1900	206	37	25	15	8	2	-----	2	-----	1	1	-----	2	113
	1890	197	57	38	10	8	2	-----	-----	1	-----	5	-----	1	75
Western states.....	1905	150	48	35	19	7	7	9	6	7	2	8	-----	2	(¹)
	1900	193	53	42	16	8	5	8	4	4	2	5	1	-----	45
	1890	301	123	56	24	12	8	7	4	7	-----	4	1	1	54

¹ Custom carding mills were largely omitted from the factory census of 1905, and therefore are not shown separately in this table.

Although the statistics for the census of 1905 show a moderate increase in the number both of one set and two set mills, it is probably true, as was noted in the report at the Twelfth Census, that the small mill with one or two sets of cards is disappearing, and that the industry is being established in larger and more important mills. It will be observed that the increase in the number of one-set mills is 19, of which 17 are located in the Southern states, where the industry is not as yet prominent. There has, in fact, been an increase

in the number of mills reporting every number of sets from 1 up to 20 and over, and it will be seen that the larger increase is in the mills having the largest number of sets. For example, the number reporting from 10 to 15 sets has increased from 69 to 105; the number of those having from 15 to 20 sets, from 31 to 57; and of those having 20 sets and over, from 37 to 78. In fact, one-half of the increase shown in Table 6 is contributed by those reporting 10 sets or more.

Table 7, showing the carding machinery—woolen cards only—in the 10 states reporting the greatest number of cards at the census of 1905, from 1870 to

1905, represents with an approach to accuracy the relative rank of the leading states in the woolen manufacture proper.

TABLE 7.—WOOLEN CARDS,¹ BY STATES: 1870 TO 1905.

STATE.	1905 ²		1900		1890		1880		1870	
	Number of cards (sets).	Per cent of total.	Number of cards (sets).	Per cent of total.	Number of cards (sets).	Per cent of total.	Number of cards (sets).	Per cent of total.	Number of cards (sets).	Per cent of total.
United States.....	5,968	100.0	6,605	100.0	7,015	100.0	6,989	100.0	8,705	100.0
Total for 10 states.....	5,172	86.7	5,736	86.8	6,055	86.3	5,667	81.1	6,284	72.2
Massachusetts.....	1,626	27.2	1,594	24.1	1,785	25.4	1,622	23.2	1,433	16.5
Pennsylvania.....	916	15.3	1,262	19.1	1,254	17.9	1,120	16.0	1,429	16.4
New York.....	615	10.3	748	11.3	702	10.0	830	11.9	940	10.8
Connecticut.....	487	8.2	459	7.0	532	7.6	543	7.8	682	7.8
Maine.....	455	7.6	437	6.6	387	5.5	274	3.9	335	2.9
New Hampshire.....	376	6.3	335	5.1	380	5.4	317	4.5	300	4.1
Rhode Island.....	344	5.8	478	7.2	558	8.0	495	7.1	484	5.6
New Jersey.....	154	2.6	207	3.1	202	2.9	161	2.3	98	1.1
Vermont.....	119	2.0	124	1.9	120	1.7	145	2.1	177	2.0
Indiana.....	80	1.4	92	1.4	135	1.9	160	2.3	346	4.0
All other states.....	796	13.3	869	13.2	960	13.7	1,322	18.9	2,421	27.8

¹ The term "woolen cards" was more restrictive in 1905 than at prior censuses, when some cotton, shoddy, and worsted cards may have been thus reported.

² Custom carding mills were largely omitted from the factory census of 1905, although included at prior censuses.

Massachusetts, which reported 1,626 sets of woolen cards out of a total of 5,968 for 1905, has since 1880 contained practically one-fourth of all the woolen cards in the United States. It was already the leader before that time, but not so markedly as since 1880. Pennsylvania also has been second in rank during the whole time, but it does not now contain so large a proportion of the total as formerly. The 5 states of Massachusetts, Pennsylvania, New York,

Connecticut, and Maine reported more than two-thirds (68.7 per cent) of the total, and the 10 states shown separately in the table 86.7 per cent.

The fact that the card regardless of its width is by no means a true measure as a standard for the capacity of woolen mills is indicated by Table 8, which shows the number and width of woolen cards used in wool manufactures, by states, for 1905.

TABLE 8.—NUMBER AND WIDTH OF WOOLEN CARDS, BY STATES: 1905.

STATE.	Total number of sets.	NUMBER OF CARDS OF EACH WIDTH REPORTED.												All other.
		24 inches.	30 inches.	36 inches.	40 inches.	42 inches.	44 inches.	46 inches.	48 inches.	54 inches.	60 inches.	72 inches.	85 inches.	
United States.....	5,968	85	53	32	1,120	12	139	16	2,987	9	1,322	51	2	140
Alabama.....	1				1									
Arkansas.....	10	6	2						1					
California.....	47								35		7			4
Connecticut.....	487				79		16		335	9	34	14		
Delaware.....	5								2		3			
Georgia.....	31		1	3					8		19			
Idaho.....	1								1					
Illinois.....	41		7		9				22		3			
Indiana.....	80				10		1		57		12			
Iowa.....	28	1			12				15					
Kansas.....	4								4					
Kentucky.....	76	7	4		4				21		39	1		
Maine.....	455	7	3	2	123		14	14	233		59			
Maryland.....	48				1				27					20
Massachusetts.....	1,626	22		10	372	3	71		861		223	26	2	36
Michigan.....	62		3	2	8				43		6			
Minnesota.....	34	3	4		19				8					
Mississippi.....	21								11		10			
Missouri.....	14			2	1				11					
New Hampshire.....	376				217		3		150		6			
New Jersey.....	154		1	1	1				119		32			
New York.....	615	5	2	1	114		22	2	357		57	6		49
North Carolina.....	25		1		6				9		9			
North Dakota.....	4								2		2			
Ohio.....	69	2	4	1	13				28		20			1
Oregon.....	29		1						27		1			
Pennsylvania.....	916	21	2	5	23		1		264		584	4		12
Rhode Island.....	344				43				234		67			
Tennessee.....	79	4	10		5				20		36			4
Texas.....	4										4			
Utah.....	12								12					
Vermont.....	119	1			20	9	11		34		40			
Virginia.....	49	1	5	2	11				13		12			5
Washington.....	2								2					
West Virginia.....	21	2	1	1	4				7		5			1
Wisconsin.....	79	3	2	2	22				41		5			4

The capacity of a small woolen mill having one or two sets of narrow cards, 24 or 30 inches, can not be compared with a modern well-equipped mill with cards of 60 to 85 inches. Therefore, although the aggregate number of woolen cards in the country is less than in 1900, it is compatible with the truth to assert that the productive capacity of mills is much

larger than it was then—a fact which is abundantly borne out by the statistics of wool consumed and of the quantity of product. Table 8 does not make a comparison between the carding machinery as disclosed for 1905 and that at the preceding census of 1900, which comparison is made in Table 9.

TABLE 9.—WIDTH OF WOOLEN CARDING MACHINES: 1905 AND 1900.

CENSUS.	Total.	24 inches.	30 inches.	36 inches.	40 inches.	42 inches.	44 inches.	46 inches.	48 inches.	54 inches.	60 inches.	72 inches.	85 inches.	All other.
1905.....	5,968	85	53	32	1,120	12	139	16	2,987	5	1,322	51	2	140
1900.....	16,498	280	126	60	1,176	23	133	67	3,372	22	1,136	29	27	41

¹ This number is less than the total number of cards reported at the census of 1900, for the reason that the width was not stated in some of the returns.

The three sizes which are most frequently employed are those of 40, 48, and 60 inches. The diminution of cards of 24 and 30 inches is most marked, the aggregate of the two having been 416 in 1900, and now only 138. There is also a slight decrease in the number of those 40 inches in width, a larger corresponding movement in those of 48 inches, but an increase in sizes 60 and 72. The number of those from 54 to 85 inches, inclusive, has increased by 170, or 14 per cent, since 1900. In that year they aggregated 1,214, as compared with 1,384 in 1905. This change is an incident

of the tendency toward large mills and extensive operations.

Combing machines.—Reference has already been made to the rapid change in recent times from the woolen to the worsted manufacture. The increase in the number of combs during the last five years has been at a slower rate than during the previous twenty years, having been, numerically, only from 1,451 in 1900 to 1,549 in 1905. Table 10 exhibits the number of combs, at each of the last five enumerations, for the 8 states reporting the largest number of combs at the census of 1905.

TABLE 10.—NUMBER OF COMBING MACHINES, BY STATES: 1870 TO 1905.

STATE.	1905		1900		1890		1880		1870	
	Number of combs.	Per cent of total.	Number of combs.	Per cent of total.	Number of combs.	Per cent of total.	Number of combs.	Per cent of total.	Number of combs.	Per cent of total.
United States.....	1,549	100.0	1,451	100.0	839	100.0	515	100.0	261	100.0
Total for 8 states.....	1,495	96.5	1,422	98.0	820	97.7	512	99.4	261	100.0
Massachusetts.....	497	32.1	424	29.2	265	31.5	190	36.9	172	65.9
Pennsylvania.....	377	24.3	357	24.6	188	22.4	121	23.5	29	11.1
Rhode Island.....	291	18.8	287	19.8	193	23.0	70	13.6	7	2.7
New Jersey.....	169	10.9	128	8.8	29	3.5	9	1.7	6	2.3
New York.....	74	4.8	116	8.0	84	10.0	80	15.5	1	0.4
Connecticut.....	37	2.4	57	3.9	27	3.2	21	4.1	34	13.0
Maine.....	26	1.7	19	1.3	5	0.6				
New Hampshire.....	24	1.5	24	2.4	29	3.5	21	4.1	12	4.6
All other states.....	54	3.5	20	2.0	19	2.3	3	0.6		

The worsted manufacture is concentrated in a few states to a much greater degree than is the woolen manufacture. Almost seven-eighths—86.1 per cent—of the combs in the United States are in the 4 states of Massachusetts, Pennsylvania, Rhode Island, and New Jersey. As has already been remarked, Massachusetts leads not only in the number of combs, but in the increase in the number during the last five years. Pennsylvania is next in number, but New Jersey is second in increase. It seems from the returns that the industry is actually declining in New York, with

a decrease in the number of combs from 116 to 74; in Connecticut, with a decrease from 57 to 37; and in New Hampshire, with a decrease from 34 to 24; but there is a small increase from 19 to 26 in Maine.

It is usually estimated that the capacity of 1 comb is equal to 2½ sets of cards. Upon this basis the total capacity of all woolen cards and combs in 1905 is equivalent to 9,840 cards, as compared with 10,232 in 1900. The distribution of this productive machinery among the 8 leading states is presented in Table 11.

TABLE 11.—*Productive machinery (cards and combs) reduced to the card basis, with per cent of total: 1890 to 1905.*

STATE.	1905		1900		1890	
	Number of cards (sets).	Per cent of total.	Number of cards (sets).	Per cent of total.	Number of cards (sets).	Per cent of total.
United States..	9,840	100.0	10,232	100.0	9,112	100.0
Total for 8 states..	8,709	88.5	9,074	88.7	7,849	86.1
Massachusetts..	2,868	29.1	2,654	25.9	2,448	26.9
Pennsylvania..	1,858	18.9	2,154	21.1	1,724	18.9
Rhode Island..	1,072	10.9	1,195	11.7	1,040	11.4
New York.....	800	8.1	1,038	10.1	912	10.0
Connecticut...	579	5.9	602	5.9	599	6.6
New Jersey....	576	5.9	527	5.2	274	3.0
Maine.....	520	5.3	484	4.7	399	4.4
New Hampshire	436	4.4	420	4.1	453	4.9
All other states....	1,131	11.5	1,158	11.3	1,263	13.9

TABLE 12.—SPINDLES,¹ DISTRIBUTED AS TO KIND AND INDUSTRY: 1890 TO 1905.

INDUSTRY.	TOTAL.			WOOLEN SPINDLES.			WORSTED SPINDLES.			COTTON SPINDLES.		
	1905	1900	1890	1905	1900	1890	1905	1900	1890	1905	1900	1890
Total.....	4,021,098	3,511,099	2,793,147	2,280,042	2,031,028	2,016,343	1,630,643	1,325,255	650,557	110,413	154,816	126,247
Worsted goods.....	1,618,207	1,371,026	755,080	1,305,667	1,500,026	207,180	1,424,895	1,125,644	479,675	52,745	95,356	68,225
Woolen goods.....	2,129,727	1,906,581	1,815,380	2,029,175	1,789,683	1,742,288	54,976	65,762	19,750	45,576	51,136	53,342
Carpets and rugs.....	255,347	209,206	208,858	92,483	67,033	53,046	150,772	133,849	151,132	12,092	8,324	4,680
Felt goods.....	17,817	24,286	13,829	17,817	24,286	13,829						

¹ Includes both producing, and doubling and twisting spindles.

The increase in the total number is a little more than 14 per cent in the five years from 1900 to 1905, as compared with an increase of 25.7 per cent for the previous decade. The spindles are classified as woolen, worsted, and cotton. The increase of woolen spindles from 1900 to 1905 is 249,014, or 12.3 per cent, and of worsted spindles 305,388, or 23 per cent, but there is a decrease of 44,403 cotton spindles. The decrease in the number of cotton spindles is not significant, inasmuch as the spinning of cotton in small worsted and woolen mills is not always a measure of economy, and when the spindles are of ancient pattern it is economical to discontinue their use and purchase the yarns that may be needed. The increase in the number of woolen spindles in woolen mills from 1890 to 1900 was 47,395, and in the last five years the increase was 239,492. In worsted mills, however, the number of woolen spindles shows a decrease, in consequence of the continuation of the movement to remove such spindles from worsted mills. There is a very considerable increase in the number of woolen spindles in carpet mills. Of worsted spindles, there is a decrease in woolen mills from 1900 to 1905, but an increase of 299,251 in worsted mills, and one of 16,923 in carpet mills. The average number of woolen spindles to the card in 1905 was 382; in 1900 the average number was 307; and in 1890 it was 246. The average number of worsted spindles to a comb is now reported as 1,052, against 913 in 1900 and 775 in 1890—an increase which is probably to be accounted for by the larger efficiency of the comb.

The number of doubling spindles reported in 1905

Spindles.—Since the card is an unsatisfactory standard of capacity, the suggestion has been made that the number of spindles be substituted; but the spindles used in the wool manufacture are so various in character and count for so much more in the production of one kind of yarn than of another that it has not been deemed expedient to adopt the spindle as a unit. Nevertheless a certain rough measure of the relative magnitude or the increase of the manufacture may be obtained by the use of the spindle. At the present census the total number of spindles of all kinds reported was 4,021,098, as compared with 3,511,099 in 1900, as is shown in Table 12.

is 110,626 woolen, 441,038 worsted, and 12,233 cotton—a total of 563,887. The numbers of woolen and worsted spindles alone are of importance. The larger use of doubling spindles implies a higher grade of manufacture. At the census of 1900 the proportion of doubling woolen spindles was 1 to 20.3 spinning spindles. The 110,626 woolen doubling spindles to the 2,169,416 spinning spindles in 1905, or one doubling to 19.6 spinning, shows a satisfactory advance during the last five years. The ratio of doubling to spinning worsted spindles was 1 to 2.85 in 1900, and in 1905 it was almost 1 to 2.70.

Looms.—The expansion of the woolen industry is shown by nothing more clearly than by a consideration of the looms in the establishments of the various branches; for although the entire number of looms—which was 69,807 in 1890 and 74,190 in 1900—has increased only to 77,985 in 1905, yet an examination of the character of the looms betokens an enormous advance. The following tabular statement presents a classification of the looms making woolen and worsted goods at the censuses of 1890, 1900, and 1905:

Looms on woolen and worsted goods: 1890 to 1905.

KIND.	1905	1900	1890
Total.....	66,293	63,294	58,578
Broad looms: ¹			
On woolen goods.....	27,171	22,364	20,848
On worsted goods.....	19,722	16,710	8,482
Narrow looms: ²			
On woolen goods.....	10,933	14,220	17,653
On worsted goods.....	8,401	9,920	11,447
Hand looms.....	60	80	448

¹ Fifty inches or more, reed space.² Under 50 inches, reed space.

It will be seen that whereas the number of broad looms—those of 50 inches or more reed space—on woolen goods, has increased from 20,848 in 1890 and 22,364 in 1900 to 27,171 in 1905, and the broad looms on worsted goods have increased from 8,482 in 1890 and 16,710 in 1900 to 19,722 in 1905, there has been a steady decrease of narrow looms, both those on woolen goods and those on worsted goods. Moreover, the number of hand looms has diminished from 448 in 1890 to 80 in 1900 and 66 in 1905. Probably substantially all of the hand looms still reported are merely pattern looms, and are only occasionally in use.

The facts relating to the looms in carpet and rug factories tell a somewhat similar story. The following comparisons are made from Table 46 in this report and similar tables in prior Census reports. In 1890 the number of carpet and rug looms was 10,929; in 1900, 10,896; and in 1905, 11,692—apparently a

very moderate increase in fifteen years. But of the total in 1890, 2,628 were hand looms, of which 638 were used in making ingrain carpets, 158 were Venetian hand looms, and 1,832 were Smyrna rug hand looms. In 1900 the number of hand looms had diminished to 1,055, of which 955 were Smyrna hand looms and 100 ingrain carpet looms. In 1905 the total number of hand looms was 690, of which 124 were ingrain carpet looms, 3 Venetian hand looms, and 563 Smyrna rug looms. The increase of power looms, therefore, is from 8,301 in 1890 to 9,841 in 1900 and 11,002 in 1905.

MATERIALS USED.

Table 13 presents in detail a summary of the kind, quantity, and cost of the principal materials used in the five branches of the wool manufacture as reported at the census of 1905.

TABLE 13.—WOOL MANUFACTURES—MATERIALS USED, BY KIND, QUANTITY, AND COST: 1905.

KIND.	Total.	Worsted goods.	Woolen goods.	Carpets and rugs.	Felt goods.	Wool hats.
Total cost.....	\$242,561,096	\$109,658,481	\$87,830,825	\$37,947,954	\$5,754,026	\$1,369,810
Purchased in raw state:						
Wool, foreign and domestic, in condition purchased—						
Pounds.....	483,526,095	261,368,084	157,335,727	51,320,521	11,868,238	1,633,525
Cost.....	\$119,748,779	\$62,734,716	\$42,698,735	\$10,431,146	\$3,388,588	\$495,594
Animal hair and fur—						
Camel, alpaca, and vicuña hair—						
Pounds.....	1,578,800	1,563,407	15,393			
Cost.....	\$320,280	\$315,712	\$4,568			
Mohair, domestic and foreign—						
Pounds.....	5,620,196	3,632,483	1,296,348		524,718	166,647
Cost.....	\$1,917,360	\$1,266,491	\$370,810		\$207,801	\$72,258
Buffalo, cow, and other animal hair and fur—						
Pounds.....	36,286,430	544,359	22,442,973	6,805,802	6,449,916	43,380
Cost.....	\$2,185,953	\$65,086	\$1,304,690	\$593,588	\$165,996	\$56,593
Raw cotton—						
Pounds.....	36,593,401	4,333,576	28,279,832	1,997,369	1,982,624	
Cost.....	\$4,541,219	\$576,622	\$3,496,285	\$251,112	\$217,200	
Purchased in partially manufactured form:						
Tailors' clippings, rags, etc.—						
Pounds.....	81,059,536	5,344	79,361,946	371,822	1,320,424	
Cost.....	\$5,748,070	\$362	\$5,668,272	\$14,325	\$65,111	
Shoddy—						
Pounds.....	35,782,056	2,327,557	29,591,899	2,297,806	1,532,127	32,667
Cost.....	\$4,833,949	\$413,015	\$4,059,651	\$200,785	\$157,031	\$3,467
Wool, camel, etc., and mohair waste and noils—						
Pounds.....	30,441,941	2,263,875	23,768,963	2,172,481	1,948,969	287,653
Cost.....	\$6,969,557	\$710,487	\$5,345,740	\$341,309	\$452,509	\$119,512
Tops—						
Pounds.....	10,843,036	8,962,183	198,746	1,606,770	75,202	135
Cost.....	\$5,379,333	\$4,959,614	\$113,464	\$253,609	\$52,573	\$73
Yarns—						
Woolen—						
Pounds.....	38,181,488	2,024,978	3,725,110	32,431,400		
Cost.....	\$9,270,883	\$1,160,180	\$1,462,702	\$6,648,001		
Worsted—						
Pounds.....	42,403,705	26,769,263	4,278,253	11,355,993	196	
Cost.....	\$30,309,750	\$21,473,093	\$3,431,418	\$5,405,072	\$167	
Merino (cotton mixed) —						
Pounds.....	3,618,407	879,005	1,579,080	1,036,138	124,184	
Cost.....	\$770,627	\$320,118	\$260,989	\$156,885	\$32,635	
Cotton—						
Pounds.....	60,429,356	13,719,123	18,878,949	27,421,831	409,453	
Cost.....	\$12,896,381	\$3,827,767	\$4,205,006	\$4,757,850	\$105,758	
Silk—						
Pounds.....	202,578	176,918	25,652		8	
Cost.....	\$947,787	\$815,665	\$132,091		\$31	
Spun silk—						
Pounds.....	285,748	128,012	81,725	76,000	11	
Cost.....	\$914,549	\$499,486	\$232,641	\$182,400	\$22	
Linen—						
Pounds.....	8,252,529	1,500	2,007	8,228,206	20,822	
Cost.....	\$1,368,145	\$1,275	\$2,005	\$1,355,892	\$8,973	
Jute, ramie, and other vegetable fibers—						
Pounds.....	49,705,980	13,171	395,101	49,119,558	178,150	
Cost.....	\$3,426,515	\$1,702	\$16,136	\$3,404,516	\$4,161	
All other materials	\$31,011,959	\$10,517,090	\$15,025,622	\$3,951,464	\$895,470	\$622,313
Materials made in mill for use therein:						
Cotton yarn, pounds.....	5,720,319	938,325	3,008,798	1,773,196		
Shoddy, pounds.....	70,801,994	256,567	70,102,848		442,079	500

The amount of new wool "in condition purchased" consumed during the year covered by the census of

1905 in all the divisions of the wool manufacture was 483,526,095 pounds, as compared with 394,369,523

pounds in 1900. Classifying the wool as domestic and foreign, the amounts disclosed at the two census enumerations were as follows:

CENSUS.	Domestic (pounds).	Foreign (pounds).
1905.....	330,963,563	152,562,532
1900.....	257,934,562	136,434,961

The total quantity of new wool was greater by 22.6 per cent in 1905 than in 1900. The consumption of domestic wool was greater by 28.3 per cent; of foreign, by 11.8 per cent. The aggregate amount of shoddy purchased and made in the mill for use therein was 106,584,050 pounds, as compared with 71,496,508 pounds reported in 1900, an increase of 49 per cent. The quantity of raw cotton and cotton yarn purchased is now reported at 97,022,757 pounds, as compared with 98,632,496 pounds in 1900, a decrease of 1.6 per cent. Of wool, camel, etc., and mohair waste and noils the quantity reported in 1905 was 30,441,941 pounds and in 1900, 21,555,797 pounds, an increase of 41.2 per cent. The aggregate amount of yarns of all kinds purchased was 203,079,791 pounds, of a value of \$59,904,637, against a total of 181,104,221 pounds, valued at \$45,588,908, in 1900. The amount of tops nearly doubled in 1905, as compared with 1900. In the earlier year 5,865,566 pounds were reported and in 1905, 10,843,036 pounds. The items of yarns and other materials purchased in partially manufactured form are a duplication of products when such materials were made and sold by establishments engaged in some branch of the wool industry.

Net wool supply.—Table 14 exhibits the net available supply of wool for each year since 1881.

TABLE 14.—Wool produced and imported, domestic exports, and net supply of the United States: 1881 to 1904.

YEAR.	Domestic production (Department of Agriculture) (pounds).	Imports entered for consumption, year ending June 30 ¹ (pounds).	Total production and imports (pounds).	Domestic exports, year ending June 30 ¹ (pounds).	Net supply (pounds).	Per cent of imports to net supply.
1904....	291,783,032	161,720,007	453,503,039	319,750	453,183,289	35.7
1903....	287,450,000	179,651,038	467,101,038	518,919	466,582,119	38.5
1902....	316,341,032	160,437,130	476,778,162	123,278	476,654,884	33.7
1901....	302,502,382	124,863,051	427,365,433	199,565	427,165,868	29.2
1900....	308,991,812	128,250,945	438,242,757	2,200,309	436,042,448	29.4
1899....	272,191,330	77,388,192	349,579,522	1,683,419	347,896,103	22.2
1898....	266,720,684	70,333,668	337,054,352	121,139	336,933,213	20.9
1897....	259,152,251	350,250,028	609,403,279	5,271,535	604,131,744	58.0
1896....	272,474,708	228,647,543	501,122,251	6,945,981	494,176,270	46.3
1895....	309,748,000	265,726,348	575,474,348	4,279,109	571,195,239	46.5
1894....	298,057,384	45,726,056	343,783,440	520,247	343,263,193	13.3
1893....	303,153,000	175,636,042	478,789,042	91,858	478,697,184	36.7
1892....	294,000,000	134,622,336	428,622,336	202,456	428,419,880	31.4
1891....	285,000,000	119,390,280	404,390,280	291,922	404,098,358	29.5
1890....	276,000,000	109,902,105	385,902,105	231,042	385,671,063	28.5
1889....	265,000,000	126,181,273	391,181,273	141,576	391,039,697	32.3
1888....	269,000,000	97,231,267	366,231,267	22,164	366,209,103	26.6
1887....	285,000,000	114,404,173	399,404,173	257,940	399,146,233	28.7
1886....	302,000,000	107,910,549	409,910,549	147,023	409,763,526	26.3
1885....	308,000,000	68,146,652	376,146,652	88,006	376,058,646	18.1
1884....	300,000,000	87,703,931	387,703,931	10,393	387,693,538	22.6
1883....	290,000,000	53,049,967	343,049,967	64,474	342,985,493	15.5
1882....	272,000,000	63,016,769	335,016,769	116,179	334,900,590	18.8
1881....	240,000,000	67,416,967	307,416,967	71,455	307,345,512	21.9

It will be observed that the consumption of wool in the mills of the country in 1904 exceeded by more than 30,000,000 pounds the net supply during that year. There is, nevertheless, no reason to doubt the accuracy of the statement, either of the supply or of the consumption, as it is well known that the activity of manufacture was so great as to draw upon the reserves and cause a shortage of wool, which has been reflected in a higher range of prices. The excess was altogether in the domestic article, for the consumption of foreign wool was 9,000,000 pounds less than the importation during the fiscal year 1903-4, and 18,000,000 pounds less than the average importation of that and the preceding year.

Wool consumption.—The largest quantity of foreign wool used in the United States is the carpet wool of Class 3. At the census of 1905 the carpet mills of the country consumed 50,463,653 pounds of this class of wool, and they also made use of 11,355,993 pounds of worsted yarn made in other mills, substantially the whole of which was made from imported Class 3 wool. On the basis of 2 pounds of wool to 1 of yarn, this would mean a consumption of 22,711,986 pounds of imported wool in addition to that purchased in the raw state, or a total of 73,175,639 pounds. They also consumed 32,431,400 pounds of woollen yarn purchased. Assuming, as was done in the report on the census of 1900, that 10,000,000 pounds represents the quantity of foreign wool in the woollen yarn purchased, we have a total consumption of Class 3 wool in the carpet industry of about 83,000,000 pounds, which is 25,000,000 pounds less than the amount entered for consumption of this class—108,133,037 pounds—in the fiscal year 1903-4. Formerly such wool was consumed almost wholly in the manufacture of carpets and of low grade blankets and similar coarse goods, but in recent years considerable quantities of it have been employed in substitution for better grades of wool in the manufacture of certain articles of clothing for men. Attention has already been called to the fact that large amounts of it were used by the contractors in England who supplied clothing for the Russian and Japanese armies during the war between Japan and Russia, with the result of largely advancing the market price. How extensively it has been used in this country is impossible even to conjecture.

In addition to the wool of the sheep used in this industry, there is a small and decreasing consumption of camel's hair and noils and alpaca hair and noils, and a larger and increasing consumption of mohair and of buffalo, cow, and other coarse hair. The amounts used at the censuses of 1900 and 1905 were as follows:

	1905 (pounds).	1900 (pounds).
Camel, alpaca, and vicuña hair and noils	2,260,001	2,862,792
Mohair and noils	6,021,148	3,162,908
Buffalo, cow, and other hair and fur	36,286,430	29,085,363

¹ Bureau of Statistics, Department of Commerce and Labor, "Commerce and Navigation of the United States."

² Estimate of the National Association of Wool Manufacturers.

³ Census of 1900, and includes pulled wool estimated at 33,000,000 pounds, but excludes 961,328 pounds of domestic mohair.

The amounts are unimportant except in the item of buffalo, cow, and other hair and fur, large quantities of which are used in the manufacture of carpets, felt goods, and still more in the material for horse blankets and similar goods.

The total quantity of wool reported in the wool industry "in condition purchased" was 483,526,095 pounds. The amount reported by knitting mills is 17,300,616 pounds, and by shoddy and felt hat mills 641,492 pounds. We may estimate 30,000,000 pounds as a reasonable addition on account of the amount of wool purchased in the scoured state, and thus reach a total of 531,468,203 pounds of sheep's wool in the raw state. If to this amount we add the hair and fur of other animals—excluding noils, which are classed as partly

manufactured—we have a grand total of 582,276,490 pounds of raw material of animal origin consumed in the textile industries. This amount compares with 479,649,972 pounds ascertained by the same process at the census of 1900. These amounts do not account for all the material of wool and hair consumed, since it is necessary to add to them the equivalent amount of wool for the woolen and worsted yarn imported and used. But the quantity of foreign yarns is not large, and the returns do not disclose the origin of the yarn purchased.

Table 15 is a continuation of one prepared for the report at the Twelfth Census, intended to show the per capita consumption of wool in the United States for each census year beginning with 1840.

TABLE 15.—COMPARATIVE CONSUMPTION OF WOOL IN THE UNITED STATES: 1840 TO 1904.

[Imports and exports for year ending June 30: Bureau of Statistics, Department of Commerce and Labor, "Commerce and Navigation of the United States."]

CENSUS.	Imports of wool entered for consumption (pounds). ¹	Domestic production of wool (pounds).	Domestic exports (pounds).	Net supply (pounds).	Imports of wool manufactures, allowing 3 pounds of wool to the \$1 in value (pounds).	Total consumption (pounds).	Per capita consumption of wool (pounds).
1904.....	161,720,007	² 291,783,032	319,750	453,183,289	52,896,939	506,080,228	³ 6.22
1900.....	128,250,945	⁴ 310,953,140	2,200,309	437,003,776	46,861,460	483,865,236	5.97
1890.....	109,902,105	276,000,000	231,042	385,671,063	162,496,269	548,167,332	8.75
1880.....	99,372,440	232,500,000	191,551	331,680,889	95,503,641	427,184,530	8.52
1870.....	38,634,067	162,000,000	152,892	200,481,175	105,289,422	305,770,597	7.93
1860.....	26,125,891	60,264,913	1,055,928	85,334,876	128,497,923	213,832,799	6.80
1850.....	18,695,294	52,516,969	35,898	71,176,365	58,178,613	129,354,978	5.58
1840.....	⁵ 9,813,212	35,802,114	.....	45,615,326	31,095,276	76,710,602	4.49

¹ Quantities for 1840, 1850, and 1860 are imports, less reexports.

² Estimate of the National Association of Wool Manufacturers.

³ Population in 1904 estimated at 81,338,064.

⁴ Census report. Includes wool and mohair; and pulled wool estimated at 33,000,000 pounds

⁵ Year ending September 30.

Inasmuch as the preceding table shows the consumption of only 506,080,228 pounds in 1904, it is evident that the basis for that statement is not sound in the sense of showing the actual per capita consumption; but as the same system is followed for each census year, it does show the comparative consumption at different times with sufficient accuracy. For the mere fact that the production and importation of raw wool increase at a considerably slower rate than that of the increase of population renders the conclusion inevitable that the average consumption of wool over a long period of time is decreasing. The inference does not need the corroboration of another well-known fact that cotton, either alone or mixed with wool, has largely supplanted pure wool as the material of a great number of fabrics.

Scoured wool.—The 483,526,095 pounds of sheep's wool consumed in the five branches of the wool industry are represented by 282,194,618 pounds of scoured wool. This indicates an apparent shrinkage of 41.6 per cent, which is very much below the actual shrinkage, for of the wool "in condition purchased," a considerable amount was washed or scoured before it was purchased. Although it is thus impossible from the census returns to make even an approach to accuracy

in a statement of the average shrinkage, a comparison of the apparent shrinkage in the wool used by the different branches of the industry may not be without interest:

	Wool in condition purchased (pounds).	Scoured wool (pounds).	Per cent shrinkage.
Total.....	483,526,095	282,194,618	41.6
Worsted goods.....	261,368,084	139,173,774	46.8
Woolen goods.....	157,335,727	102,106,291	35.1
Carpets and rugs.....	51,320,521	31,551,895	38.5
Felt goods.....	11,868,238	8,131,082	31.5
Wool hats.....	1,633,525	1,231,576	24.6

For purposes of comparison Table 16 is presented, showing the average cost per pound of scoured wool consumed in the industry as a whole and in each of its branches during each census year, beginning with 1880. Prior to the present enumeration the course has been steadily downward, but in 1905 the cost, both of raw and of scoured wool, shows a considerable advance in market value. This fact needs no other comment than that it is in strict accordance with the market situation already described in this report. Attention may nevertheless be called to the remarkable advance from 1900 to 1905 in the average cost

per pound of the wool used by carpet mills, amounting to no less than 53.2 per cent; the average cost of 33.06 cents per pound for 1905 was the highest average reported in any census year.

TABLE 16.—Average cost of scoured wool consumed in the wool manufacture and in each industry: 1880 to 1905.

INDUSTRY.	Census.	Quantity (pounds).	Cost.	AVERAGE COST PER POUND.	
				Cents.	Per cent of decrease.
Total	1905	282,194,618	\$119,748,779	42.43	12.6
	1900	238,632,452	89,893,350	37.67	17.3
	1890	198,174,021	90,286,066	45.56	19.5
	1880	165,953,139	93,860,421	56.56	.....
Worsted goods	1905	139,173,774	62,734,716	45.08	15.2
	1900	103,338,616	44,306,141	42.87	16.7
	1890	54,989,746	28,280,287	51.43	11.1
	1880	26,334,635	15,235,878	57.85	.....
Woolen goods	1905	102,106,291	42,698,735	41.82	18.3
	1900	89,366,903	34,497,689	38.60	20.8
	1890	100,226,094	48,859,811	48.75	20.6
	1880	109,724,213	67,380,250	61.41	.....
Carpets and rugs	1905	31,551,895	10,431,146	33.06	153.2
	1900	37,560,231	8,104,107	21.58	21.8
	1890	35,726,837	9,855,787	27.59	6.8
	1880	23,563,216	6,975,129	29.60	.....
Felt goods	1905	8,131,082	3,388,588	41.67	122.7
	1900	6,468,097	2,196,440	33.96	22.3
	1890	4,213,230	1,841,382	43.70	26.5
	1880	2,733,796	1,624,871	59.44	.....
Wool hats	1905	1,231,576	495,594	40.24	3.2
	1900	1,898,605	788,973	41.56	13.4
	1890	3,018,114	1,448,799	48.00	34.7
	1880	3,597,279	2,644,293	73.51	.....
Quantity of wool "in condition purchased," total for the 5 industries	1905	483,526,095	119,748,779	24.76	18.6
	1900	394,369,523	89,893,350	22.79	11.4
	1890	351,158,020	90,286,066	25.71	21.2
	1880	287,597,334	93,860,421	32.64	.....

¹ Increase.

Cotton in the wool industry.—The 1905 census figures do not show a substantial increase in the use of cotton in combination with wool. Wool manufacturers return the consumption of but 36,593,401 pounds of raw cotton, although in 1900 they reported 43,414,502 pounds. Neither of these quantities, however, represents the whole of the cotton that enters into the production of fabrics which are properly classed with the wool industry. There is, first, a large amount which is consumed in factories which are virtually both cotton and worsted mills; that is to say, they are such large spinners of cotton which they weave with worsted yarn in the manufacture of dress goods that it would lead to a serious statistical error if the cotton yarn made by them were not credited to the cotton industry. In the case of some of the largest of these establishments,

their materials and products are divided between the two industries. In the second place there is a large amount of cotton yarn purchased—for 1905 the amount purchased was 60,429,356 pounds, against 55,217,994 pounds in 1900. A considerable amount of the raw cotton here reported is used on the cards with wool in the production of mixed, or merino, yarn, the quantity of which it is impossible to ascertain from the statistics. If we assume that the 60,000,000 pounds of cotton yarn constituted the product of 73,000,000 pounds of raw cotton, the total amount of cotton, aside from that consumed in mills classed with both industries, would be about 110,000,000 pounds, as compared with 108,000,000 pounds in 1900.

Shoddy.—Table 17 exhibits the quantity and the proportion of scoured wool and of shoddy used in the wool industry for the censuses of 1890, 1900, and 1905.

TABLE 17.—Scoured wool and shoddy consumed in the wool manufacture, with per cent of total: 1890 to 1905.

	1905		1900		1890	
	Quantity (pounds).	Per cent of total.	Quantity (pounds).	Per cent of total.	Quantity (pounds).	Per cent of total.
Total	388,778,668	100.0	310,128,960	100.0	255,000,496	100.0
Scoured wool	282,194,618	72.6	238,632,452	76.9	198,174,021	77.7
Shoddy purchased	35,782,056	27.4	34,496,508	23.1	56,826,475	22.3
Shoddy made	70,801,994		37,000,000			

This is the first census at which the amount of shoddy made in mills for use therein has been ascertained with a close approach to accuracy. At the Twelfth Census the amount was partly estimated, as the report at that census states frankly. Evidently the estimate was much too low, for although it is a matter of common knowledge that the comparative use of shoddy has increased, the change has been by no means so extensive as is indicated by the above figures. It is to be remembered that little shoddy is or can be used in the production of worsted goods, which is the branch of the industry that has increased most largely in the last five years. It would be incredible that an addition of 13,000,000 pounds of scoured wool in that period to the amount consumed in the manufacture of woolen goods has been accompanied by an increased shoddy consumption of 35,000,000 pounds.

Table 18 shows the percentage of scoured wool to other fibers in all branches of the wool industry in 1880, 1890, 1900, and 1905.

TABLE 18.—SCOURED WOOL, ANIMAL HAIR, SHODDY, AND COTTON CONSUMED IN THE WOOL MANUFACTURE, WITH PER CENT OF TOTAL: 1880 TO 1905.

	1905 (pounds).	1900 (pounds).	1890 (pounds).	1880 (pounds).	PER CENT OF TOTAL.			
					1905	1900	1890	1880
Total.....	529,286,851	443,431,261	375,635,079	283,086,551	100.0	100.0	100.0	100.0
Scoured wool, including camel, alpaca, and vicuña hair and mohair.....	289,393,614	244,216,894	207,584,746	167,634,157	54.7	55.1	55.3	59.2
Shoddy, ¹ including buffalo, cow, and other animal hair and fur.....	142,870,480	100,581,871	73,678,066	56,970,682	27.0	22.7	19.6	20.1
Cotton and cotton yarn.....	97,022,757	98,632,496	94,372,267	58,481,712	18.3	22.2	25.1	20.7

¹Includes shoddy made in mill for use therein.

The apparent showing is that the proportion of scoured wool to other fibers has slightly declined in five years from 55.1 per cent to 54.7 per cent.

Yarns purchased.—Two tabulations are presented showing the quantity and value of yarns purchased for use in the wool industry. The first is a comparative statement of the quantity and cost of all kinds of yarn purchased, as reported at the censuses of 1880, 1890, 1900, and 1905; the other, Table 19, is a detailed statement for 1905 only, of the several kinds of yarn purchased in each branch of the industry, and shows both the weight and the cost. The total amount of

yarn purchased in an industry so permanently organized as this bears an almost unvarying relation to the amount of raw material reported, and the figures in the first statement suggest no valuable comment.

Yarns purchased: 1880 to 1905.

CENSUS.	Pounds.	Cost.
1905.....	203,079,791	\$59,904,637
1900.....	181,104,221	45,588,908
1890.....	135,654,706	42,142,403
1880.....	53,335,390	20,814,384

TABLE 19.—YARNS PURCHASED, DISTRIBUTED BY KIND AND INDUSTRIES: 1905.

KIND.	TOTAL.		WORSTED GOODS.		WOOLEN GOODS.		CARPETS AND RUGS.		FELT GOODS.	
	Pounds.	Cost.	Pounds.	Cost.	Pounds.	Cost.	Pounds.	Cost.	Pounds.	Cost.
Total.....	203,079,791	\$59,904,637	43,711,970	\$28,099,286	28,965,877	\$9,742,988	129,669,120	\$21,910,616	732,824	\$151,747
Woolen.....	38,181,488	9,270,883	2,024,978	1,160,180	3,725,110	1,462,702	32,431,400	6,648,001	196	167
Worsted.....	42,403,705	30,309,750	26,769,263	21,473,093	4,278,253	3,431,418	11,355,993	5,405,072	124,184	32,635
Merino.....	3,618,407	770,627	879,005	320,118	1,579,080	260,989	1,036,138	156,885	409,453	105,758
Cotton.....	60,429,356	12,896,381	13,719,123	3,827,767	18,878,949	4,205,006	27,421,831	4,757,850	8	31
Silk.....	202,578	947,787	176,918	815,665	25,652	132,091	76,000	182,400	11	22
Spun silk.....	285,748	914,549	128,012	499,486	81,725	232,641	8,228,200	1,355,892	20,822	8,973
Linen.....	8,252,529	1,368,145	1,500	1,275	2,007	2,005	49,119,558	3,404,516	178,150	4,161
Jute, ramie, and other vegetable fiber.....	49,705,980	3,426,515	13,171	1,702	395,101	16,136				

When we examine the details of Table 19 and compare them with the 1900 statistics we find some interesting variations. Thus, whereas the woolen yarn shows a positive decrease in 1905 as compared with 1900, the amount of 38,181,488 pounds in 1905 compared with 38,903,178 pounds in 1900, worsted yarn has increased from 34,377,736 pounds in 1900 to 42,403,705 pounds in 1905. This is merely another manifestation of the change of fashion, so often noted in this report, from woolen to worsted goods. There is an important increase in silk yarn of from 70,073 pounds to 202,578 pounds, an increase which is made significant by the high cost of silk yarns, averaging more than \$4.50 a pound. There is also a very large increase in the use of jute, ramie, and other vegetable fibers, from 39,965,180 pounds to 49,705,980 pounds. Practically the whole of the yarns of these materials is consumed in the carpet mills. The amount of linen yarn shows but little variation. This, too, yarn of the coarsest quality, is chiefly consumed in the manufacture of carpets.

Chemicals and dyestuffs.—The amount of chemicals and dyestuffs used in the wool industry bears a fairly constant relation to the amount of wool used. The following tabular statement shows the cost of chemicals and dyestuffs used in the wool industry in 1890, 1900, and 1905, and gives separately the gallons and cost of oil used to lubricate wool for carding and spinning, and the pounds and cost of the soap used in fulling and cleansing fabrics:

Chemicals and dyestuffs, etc.: 1890 to 1905.

CENSUS.	Chemicals and dyestuffs (cost).	OIL.		SOAP.	
		Gallons.	Cost.	Pounds.	Cost.
1905.....	\$9,177,681	4,142,108	\$1,212,463	45,743,409	\$1,895,614
1900.....	7,983,684	3,501,582	1,039,679	36,136,593	1,379,886
1890.....	5,889,612	3,715,114	1,239,012	32,643,591	1,106,359

IMPORTS OF WOOL.

It was shown in the report at the census of 1900 that the importation of foreign wool in the preceding

ten years had varied greatly. There were two complete revisions of the tariff during that decade, and in each case there was a radical reversal of the policy. The act of 1894 admitted wool of all sorts free of duty; the act of 1897 reimposed duties not greatly different from those levied under the act of 1890. The average annual importation in the four years during which the act of 1890 was in operation was about 126,000,000 pounds. During the three years' prevalence of free wool the average was 272,500,000 pounds. In the ensuing years to June 30, 1900, the average was 117,600,000 pounds. The fluctuation was much the greatest in Class 1, clothing wools, the importation of which averaged nearly 142,000,000 pounds in the three years of free wool, as against 34,000,000 pounds during the four previous years, and 28,000,000 pounds during the three following years. The importations for the five years from July 1, 1900, to June 30, 1905, have been as follows:

YEAR.	Total (pounds).	Class 1 (pounds).	Class 2 (pounds).	Class 3 (pounds).
1900-1901.....	124,863,051	35,806,019	7,334,089	81,722,943
1901-2.....	160,437,130	55,203,457	6,745,943	98,487,730
1902-3.....	179,651,038	46,667,412	13,738,408	119,245,218
1903-4.....	161,720,007	39,927,770	13,659,200	108,133,037
1904-5.....	211,287,482	76,769,197	21,922,408	112,595,877
Annual average	167,591,742	50,874,771	12,680,010	104,036,961

The use of foreign wools has greatly increased in the last five years, as compared with the periods 1890-94 and 1897-1900, although it has by no means reached the large proportions of the period 1894-97.

The effect of the several tariff laws on the importation of wool manufactures is equally marked and the movement corresponds closely in all particulars to the movement of the raw material, except that in the last five years the importations, although showing an increase, are much less than in the years under the act of 1890. Under the law of 1890 the average value of imports of manufactures of wool of all kinds was about \$31,000,000. Under the act of 1894 it rose to an annual average of \$47,000,000. It declined under the tariff of 1897 to an average of \$14,000,000 in the three years ending with the period of the last census. In the ensuing five years to and including the year 1904-5 the imports entered for consumption were as follows:

1900-1901.....	\$14,729,450
1901-2.....	16,977,872
1902-3.....	19,302,007
1903-4.....	17,632,313
1904-5.....	18,021,041
Annual average.....	17,332,537

Table 20 presents in a condensed form the quantity and value of wool imported into the United States and entered for consumption since 1822. The amounts are stated for five-year periods down to 1890 and from that time for each year. The table shows also the increase in quantity and the percentage of increase for each period of five years and ten years. The table is a continuation of that prepared for preceding reports on the wool industry, but it suggests no fresh comment.

TABLE 20.—IMPORTS OF FOREIGN WOOL: 1822 TO 1905.¹

[Bureau of Statistics, Department of Commerce and Labor, "Commerce and Navigation of the United States."]

PERIOD.	Quantity (pounds).	Value.	Quantity, ten-year periods (pounds).	Value.	INCREASE IN QUANTITY (POUNDS) AND PER CENT OF INCREASE IN QUANTITY.	
					Five years.	Ten years.
1822 to 1825.....	6,736,205	\$1,633,704				
Annual average.....	1,684,051	408,426				
1826 to 1830.....	10,200,102	1,612,280	16,936,307	\$3,245,964	3,463,897	
Annual average.....	2,040,020	322,452			51.42 per cent	
1831 to 1835.....	15,904,189	2,955,115			5,704,067	
Annual average.....	3,180,834	591,023			55.92 per cent	
1836 to 1840.....	46,961,106	4,001,900	62,865,275	6,957,015	31,056,937	45,923,968
Annual average.....	9,392,221	800,380			195.28 per cent	271.19 per cent
1841 to 1845.....	67,113,232	4,548,590			20,152,126	
Annual average.....	13,422,646	909,718			42.91 per cent	
1846 to 1850.....	72,651,360	5,361,468	139,764,592	9,910,058	5,538,128	76,899,317
Annual average.....	14,530,272	1,072,294			8.25 per cent	122.32 per cent
1851 to 1855.....	110,198,202	13,165,013			37,546,842	
Annual average.....	22,039,640	2,633,003			51.68 per cent	
1856 to 1860.....	119,908,085	18,690,041	230,106,287	31,855,054	9,709,883	90,341,695
Annual average.....	23,981,617	3,738,008			8.81 per cent	64.64 per cent
1861 to 1865.....	284,517,282	48,466,353			164,609,197	
Annual average.....	56,903,456	9,693,271			137.28 per cent	
1866 to 1870.....	206,032,175	31,098,855	490,549,457	79,565,208	478,485,107	260,443,170
Annual average.....	41,206,435	6,219,771			27.59 per cent	113.18 per cent
1871 to 1875.....	337,182,602	69,582,888			131,150,427	
Annual average.....	67,436,520	13,916,578			63.66 per cent	
1876 to 1880.....	259,666,315	45,326,434	596,848,917	114,909,322	477,516,287	106,299,460
Annual average.....	51,933,263	9,065,287			22.99 per cent	21.67 per cent
1881 to 1885.....	339,334,286	53,953,737			79,667,971	
Annual average.....	67,866,857	10,790,747			30.68 per cent	
1886 to 1890.....	553,629,367	77,805,485	894,963,653	131,750,222	216,295,081	298,114,736
Annual average.....	111,125,873	15,561,097			63.74 per cent	49.95 per cent

¹ The quantities and values given are for net imports, 1822 to 1866, inclusive, and imports entered for consumption from 1867 to 1905, inclusive.

² In 1834 the exports of foreign wool exceeded the imports.

³ To and including the year 1842, the fiscal year ended on September 30; after that date, on June 30.

⁴ Decrease.

TABLE 20.—IMPORTS OF FOREIGN WOOL: 1822 TO 1905—Continued.

PERIOD.	Quantity (pounds).	Value.	Quantity, ten- year periods (pounds).	Value.	INCREASE IN QUANTITY (POUNDS) AND PER CENT OF INCREASE IN QUANTITY.	
					Five years.	Ten years.
1891.....	119,390,280	\$17,070,183				
1892.....	134,622,336	17,697,068				
1893.....	175,636,042	18,403,659				
1894.....	45,726,056	5,191,806				
1895.....	265,726,348	32,624,131				
Total for 5 years.....	741,101,062	90,986,877			185,471,695	
Annual average.....	148,220,212	18,197,375			33.38 per cent	
1896.....	228,647,543	32,144,454				
1897.....	350,250,028	53,219,397				
1898.....	70,333,668	8,705,689				
1899.....	77,388,192	8,363,239				
1900.....	128,250,945	15,036,220				
Total for 5 years.....	854,870,376	117,468,999	1,595,871,438	\$208,455,876	113,769,314	701,007,785
Annual average.....	170,974,075	23,493,800			15.35 per cent	78.33 per cent
1901.....	124,863,051	15,998,015				
1902.....	160,437,130	18,385,748				
1903.....	179,651,038	21,258,031				
1904.....	161,720,007	22,330,536				
1905.....	211,287,482	35,443,449				
Total for 5 years.....	837,958,708	113,416,779			116,911,668	
Annual average.....	167,591,742	22,683,356			11.98 per cent	

¹Decrease.

Sources of foreign wool supply.—The three tables which follow show the country of origin of the several classes of wool imported during the years ending on June 30, 1890, on June 30, 1900, and on June 30, 1904, into the three principal ports of Boston, New York, and Philadelphia, where all but a mere fraction of foreign wool is entered.

By far the largest amount of imported wool is that denominated Class 3 in the acts levying duties on imports, and for that reason it is shown first.

TABLE 21.—Imports of Class 3 wool, by countries of production: 1890 to 1904.¹

	1904 (pounds).	1900 (pounds).	1890 (pounds).
Total.....	114,266,682	105,742,030	80,152,484
Asia.....	56,178,323	64,257,659	33,378,502
Aden.....	1,731	7,002	
China.....	24,912,491	30,984,902	8,704,983
India.....	9,981,886	9,396,249	7,931,474
Japan.....	20,112	27,100	
Russia—Asiatic.....	5,436,446	6,041,346	204,339
Turkey in Asia.....	13,526,458	7,853,411	12,568,375
All other.....	2,299,204	9,947,649	3,969,331
Europe.....	47,377,178	30,206,506	30,858,372
Austria-Hungary.....	716,417	920,562	11,977
Belgium.....	135,070	37,257	
Denmark.....	559,818	137,144	
England.....	1,895,457	2,234,475	5,193,817
France.....	1,284,489	330,254	2,198,996
Germany.....	1,455,549	1,986,837	718,572
Greece.....		21,722	
Greenland, Iceland, etc.....	616,939	502,736	64,104
Italy.....	249,064	57,892	444
Ireland.....	5,626	35,860	
Netherlands.....	116,727		
Portugal.....	709,510	183,891	839,956
Russia—Baltic and White seas.....		6,013,756	3,897,982
Russia—Black Sea.....	17,966,335	5,725,764	10,594,887
Russia—all other.....		1,038,198	1,362,293
Scotland.....	17,668,405	10,025,197	5,144,822
Servia.....	297,067	383,473	28,381
Spain.....	1,144,478	54,935	32,837
Sweden.....		146	
Switzerland.....	75,552	61,315	35,685
Turkey in Europe.....	2,240,438	455,092	1,733,619
All other.....	239,242		

¹Bureau of Statistics, Department of Commerce and Labor, "Monthly Summaries of Commerce and Finance."TABLE 21.—Imports of Class 3 wool, by countries of production: 1890 to 1904¹—Continued.

	1904 (pounds).	1900 (pounds).	1890 (pounds).
South America.....	10,700,969	10,615,231	15,427,402
Argentina.....	10,049,069	8,951,184	13,531,096
Brazil.....	101,671	254,705	175,697
Chile.....	513,822	864,047	1,634,953
Ecuador.....			1,087
Uruguay.....		522,087	84,569
Venezuela.....	36,407	23,208	
West Indies.....	9,426	14,877	48,134
British.....		60	32,793
Danish.....			357
Dutch.....	9,426	14,817	14,984
Africa.....	781	336,048	154,826
British Africa.....	781	62,925	
Turkey in Africa.....		183,235	154,826
All other.....		89,888	
Australasia.....		311,337	21,237
All other countries.....		372	264,011

¹Bureau of Statistics, Department of Commerce and Labor, "Monthly Summaries of Commerce and Finance."

In the report on wool manufactures at the Twelfth Census attention was called to the changes that had taken place in the sources of carpet wools in the preceding decade. Of a total increase in importations of 25,589,546 pounds, the Chinese Empire had contributed 22,279,919 pounds, and the other changes had nearly balanced one another. A decrease of about 4,500,000 pounds from Argentina was rather more than offset by an increase of 5,800,000 pounds from Asiatic Russia. The quantity from France was reduced, and that from Germany was augmented by nearly equal amounts. The changes disclosed by Table 21 are not, perhaps, significant of any permanent and continuing movement, but they differ greatly from those exhibited five years ago. The total increase is about 8,500,000 pounds. Much more than this increase is shown in the importation from European countries. European

Russia produced 17,966,335 pounds of the importation in 1904, as compared with 12,777,718 pounds in 1900, and the United Kingdom contributed 19,570,488 pounds, as against 12,295,532 pounds in 1900. European Turkey, which sent less than 500,000 pounds in 1900 is now credited with 2,240,433 pounds. There was an increase of 5,673,047 pounds from Asiatic Turkey, and of 1,097,885 pounds from Argentina, but a decrease of 5,172,411 pounds from China.

The countries of production of clothing wool, Class 1, and the imports in 1890, 1900, and 1904 are shown by Table 22.

TABLE 22.—Imports of Class 1 wool, by countries of production: 1890 to 1904.¹

	1904 (pounds).	1900 (pounds).	1890 (pounds).
Total.....	45,401,957	37,036,621	15,492,107
Australasia.....	25,792,098	22,684,590	11,928,921
South America.....	18,805,031	13,182,040	1,166,890
Argentina.....	18,018,443	11,113,095	168,355
Brazil.....	129,485	351,190	67,981
Chile.....	544,895	1,367,410	784,575
Peru.....	112,208	5,126	2,740
Uruguay.....	112,208	345,219	144,239
Europe.....	389,147	420,790	1,271,510
Belgium.....	29,432	224,010	884,807
England.....	245,617	63,027	262,333
France.....	9,271	18,627	7,199
Germany.....	37,140	157	.....
Iceland.....	.....	68,251	.....
Ireland.....	.....	100	.....
Italy.....	2,593	34,788	.....
Netherlands.....	.....	.....	.....
Portugal.....	7,151	.....	.....
Russia—Baltic and White seas.....	.....	10,514	334
Scotland.....	56,652	.....	509
Spain.....	1,271	816	91,400
Turkey in Europe.....	.....	500	24,868
All other.....	20	.....	.....
Africa.....	301,227	660,680	1,105,730
British Africa.....	301,182	626,141	1,102,793
All other.....	45	34,539	2,937
Asia.....	41,027	61,961	18,056
China.....	.....	.....	10,456
India.....	19,733	.....	.....
Turkey in Asia.....	17,912	61,933	3,800
All other.....	3,382	28	3,800
All other countries.....	73,427	26,560	1,000

¹ Bureau of Statistics, Department of Commerce and Labor, "Monthly Summaries of Commerce and Finance."

Clothing wool is, more than any other variety, brought into direct competition with the domestic article, although in quantity carpet wool constitutes two-thirds of the total importation. The two great sources of Class 1 wool are Australasia and Argentina.

In 1904 the Australasian wool of this class received at the three ports reached a total of 25,792,098 pounds, and that from Argentina, 18,018,443 pounds. Combined they accounted for 43,810,541 pounds, leaving only 1,591,416 pounds to be accounted for from all other countries. As compared with 1900, Australasia sent 3,107,508 pounds more, Argentina 6,905,348 more, and the rest of the world, 1,647,520 pounds less.

The importation of combing wools—Class 2—is not of great importance, although it is evidently on the increase, for use in the worsted branch of the industry. As will be seen from Table 23, the British Isles are the great source of this class of wool.

TABLE 23.—Imports of Class 2 wool, by countries of production: 1890 to 1904.¹

	1904 (pounds).	1900 (pounds).	1890 (pounds).
Total.....	10,732,401	9,885,173	7,658,806
Europe.....	7,121,964	8,064,596	7,312,278
Austria-Hungary.....	.....	55	.....
England.....	5,591,793	5,693,724	6,897,404
France.....	.....	296	11,526
Germany.....	10,097	.....	110
Ireland.....	1,250,155	1,660,971	.....
Netherlands.....	.....	78,240	.....
Portugal.....	10,098	.....	.....
Scotland.....	92,537	450,527	.....
Turkey in Europe.....	167,484	180,783	403,238
Asia.....	2,119,693	930,705	157,432
China.....	.....	13,387	110,647
India.....	86,937	743	.....
Russia in Asia.....	.....	39,674	.....
Turkey in Asia.....	1,790,186	841,993	46,785
All other.....	242,570	34,908	.....
South America.....	1,209,834	748,867	19
Argentina.....	100,548	.....	.....
Colombia.....	.....	.....	19
Peru.....	1,109,286	543,866	.....
Uruguay.....	.....	205,001	.....
Africa.....	280,805	15,538	3,412
British Africa.....	280,616	11,691	3,412
All other.....	189	3,847	.....
North America.....	105	.....	185,665
British Columbia.....	.....	.....	25,504
Quebec, Ontario, Manitoba, Nova Scotia, and Northwest Territory.....	105	.....	159,861
Australasia.....	.....	125,467	.....

¹ Bureau of Statistics, Department of Commerce and Labor, "Monthly Summaries of Commerce and Finance."

Of a total of 10,732,401 pounds of this class reported, the United Kingdom furnished 6,934,285 pounds, Asiatic Turkey 1,790,186 pounds, and Peru 1,109,286 pounds, leaving 898,694 pounds as the production of other countries.

Table 24 shows the total amount of foreign wool entered for consumption, classified as in the tariff laws, giving the quantities and values of each class, for every fiscal year from 1867 to 1904, inclusive.

TABLE 24.—FOREIGN WOOL ENTERED FOR CONSUMPTION IN THE UNITED STATES,¹ BY CLASS, QUANTITY, AND VALUE: 1867 TO 1904.

YEAR.	Total pounds.	NO. 1.—CLOTHING.		NO. 2.—COMBING.		NO. 3.—CARPET.	
		Pounds.	Value.	Pounds.	Value.	Pounds.	Value.
1904.....	161,720,007	39,927,770	\$7,258,325	13,659,200	\$2,828,979	108,133,037	\$12,243,232
1903.....	179,651,038	46,667,412	7,182,151	13,738,408	2,520,276	119,245,218	11,555,604
1902.....	160,437,130	55,203,457	8,161,210	6,745,943	1,163,966	98,487,730	9,060,572
1901.....	124,863,051	35,806,019	6,865,719	7,334,089	1,462,894	81,722,943	7,669,402
1900.....	128,250,945	19,369,622	3,760,696	9,910,979	2,094,373	98,970,344	9,181,151
1899.....	77,388,192	9,583,053	1,565,954	2,160,370	572,205	65,644,769	6,225,080
1898.....	70,333,668	18,122,092	3,320,651	3,865,682	776,583	48,345,894	4,608,455
1897.....	350,250,028	200,485,096	34,307,110	37,949,945	7,182,664	111,814,987	11,729,623
1896.....	228,647,543	117,533,750	19,512,199	12,992,576	3,121,030	98,121,217	9,511,225
1895.....	265,726,348	106,516,023	16,595,687	14,722,090	2,892,542	144,488,235	13,135,902
1894.....	45,726,056	7,860,841	1,449,254	1,334,631	337,679	36,530,584	3,404,873
1893.....	175,636,042	35,403,022	6,555,640	7,035,439	1,535,812	133,197,581	10,312,237
1892.....	134,622,336	38,641,130	7,731,730	5,421,081	1,222,884	90,560,125	8,742,454
1891.....	119,390,280	26,520,670	6,025,452	6,973,921	1,640,263	85,895,689	9,404,468
1890.....	109,902,105	21,387,867	4,856,640	7,662,978	1,895,536	80,851,260	9,412,867
1889.....	126,181,273	22,973,088	4,764,015	6,651,719	1,556,309	96,556,466	11,112,435
1888.....	97,231,267	16,952,513	3,648,779	5,568,068	1,322,862	74,710,686	9,090,459
1887.....	114,404,173	23,195,734	4,339,498	9,703,962	2,270,058	81,504,477	9,741,814
1886.....	107,910,549	23,321,759	4,344,189	4,872,739	1,106,116	79,716,051	8,343,908
1885.....	68,146,652	13,472,432	2,994,533	3,891,914	921,252	50,782,306	5,558,479
1884.....	87,703,931	20,703,843	4,700,605	4,474,396	1,058,758	62,525,692	7,833,936
1883.....	53,049,967	11,546,530	2,567,443	1,373,114	343,987	40,130,323	5,580,558
1882.....	63,016,769	13,489,923	3,042,408	2,318,671	648,252	47,208,175	6,642,699
1881.....	67,416,967	20,609,707	4,751,454	4,421,491	1,271,332	42,385,769	6,038,041
1880.....	99,372,440	26,785,172	6,412,273	13,266,856	3,801,730	59,320,412	7,699,663
1879.....	40,102,642	5,229,987	1,114,301	1,709,601	413,761	33,163,054	3,988,751
1878.....	39,801,161	9,916,012	2,431,044	3,028,869	969,683	26,856,280	3,594,640
1877.....	40,114,394	9,294,029	2,202,640	2,509,954	830,715	28,310,411	3,979,617
1876.....	40,275,678	8,643,366	2,187,713	3,167,307	1,153,504	28,465,005	4,546,399
1875.....	51,686,294	13,117,679	3,602,535	7,769,157	2,153,261	30,799,458	4,472,826
1874.....	56,793,737	2,398,210	815,307	27,087,437	6,193,150	27,308,090	4,603,410
1873.....	84,212,582	6,029,488	1,744,200	49,540,231	12,723,501	28,642,863	5,998,465
1872.....	94,315,933	16,871,332	4,183,960	41,155,460	8,952,131	36,289,141	6,435,468
1871.....	50,174,056	5,957,461	1,201,201	17,665,600	3,167,835	26,550,995	3,335,638
1870.....	38,634,067	6,530,493	1,249,152	2,752,569	765,147	29,351,005	3,416,024
1869.....	34,695,939	2,512,201	505,715	4,533,367	1,092,297	27,650,371	3,653,082
1868.....	24,582,551	4,681,679	918,588	1,804,272	332,315	18,096,600	2,704,768
1867.....	37,683,675	1,270,356	415,609	150,302	31,827	36,263,017	5,332,074

¹ Bureau of Statistics, Department of Commerce and Labor, "Commerce and Navigation of the United States."

It is well known that during the period of free wool under the tariff law of 1894 the importation of wool was very heavy. In anticipation of the change which took place in 1897, when wool was restored to the dutiable list, the importation was excessive, with the result that the amount imported that year was much the largest in the history of the country, and very nearly five times as much as was imported in the following year. The excess was gradually absorbed, and by the beginning of the present century the trade had returned to its normal condition. In the most recent years the average importation has been larger than in any period except during the free wool era just mentioned. It is noteworthy that the increase has extended to all the classes. Thus the importation of Class 1 wool, in the last four years, which amounted to 177,604,658 pounds, was less than the importation during the single year 1897, but the average of the four

years, 44,401,164 pounds, was larger than the importation in any one year before 1894.

Of Class 2 the aggregate of the four years was 41,477,640 pounds, which exceeded the amount in the year 1897, and the average, 10,369,410 pounds, was only four times exceeded in the last thirty years. The case of Class 3 carpet wools is more remarkable, for the aggregate of the four years, 407,588,928 pounds, was not reached in the three years of free wool, and the average of the four years, 101,897,232 pounds, was only 16,000,000 pounds less than the average of those exceptional years.

PRODUCTS.

The aggregate value of products in the wool industry, as reported for 1905, is \$380,934,003, and the general classification of these goods, showing both quantities and values, is exhibited in Table 25.

MANUFACTURES.

TABLE 25.—WOOL MANUFACTURES—PRODUCTS, BY KIND, QUANTITY, AND VALUE, WITH PER CENT OF INCREASE: 1890 TO 1905.

KIND.	CENSUS.			PER CENT OF INCREASE.	
	1905	1900	1890	1900 to 1905	1890 to 1900
Aggregate value.....	\$380,934,003	\$296,990,484	\$270,527,511	28.3	9.8
Total piece goods—					
Square yards.....	476,206,439	399,141,585	349,909,764	19.3	14.1
Value.....	\$225,056,781	\$175,209,197	\$158,405,033	28.5	10.6
Woolen, worsted, union, and cotton warp cloths, coatings, cassimeres, jeans, etc., for men's wear:					
Square yards.....	188,474,272	169,177,028	122,064,528	11.4	38.6
Value.....	\$119,184,657	\$97,852,209	\$88,261,748	21.8	10.9
Woolen, worsted, union, and cotton warp overcoatings, cloakings, etc., for men's and women's wear:					
Square yards.....	37,040,657	29,647,495	14,883,893	24.9	99.2
Value.....	\$23,312,918	\$21,666,019	\$13,082,801	7.6	65.6
Woolen, worsted, union, and cotton warp dress goods, sackings, tricots, opera flannels, cashmeres, buntings, ladies' cloth, alpaca, etc., for women's wear:					
Square yards.....	188,717,073	155,767,439	127,259,709	21.2	22.4
Value.....	\$68,667,227	\$45,278,216	\$32,285,906	51.7	40.2
All-wool, union, and cotton warp flannels:					
Square yards.....	20,269,730	20,117,663	61,195,501	0.8	167.1
Value.....	\$4,344,262	\$4,613,129	\$18,582,549	15.8	175.2
Satinets:					
Square yards.....	22,343,617	13,051,729	18,630,656	71.2	129.9
Value.....	\$4,077,233	\$2,873,181	\$4,296,082	41.9	133.1
Linings, Italian cloth, and lastings:					
Square yards.....	17,619,325	10,157,039	4,585,080	73.5	121.5
Value.....	\$4,505,927	\$2,228,434	\$1,255,520	102.2	77.5
Jersey cloth:					
Square yards.....	(2)	2,784	7,476	.....	162.8
Value.....	(2)	\$1,010	\$13,636	.....	192.6
Carriage cloths:					
Square yards.....	1,741,765	1,220,408	1,282,921	42.7	14.9
Value.....	\$964,557	\$696,999	\$626,791	38.4	11.2
Total—					
Square yards.....	29,807,098	27,811,002	31,835,333	7.2	112.6
Value.....	\$9,763,459	\$8,429,579	\$11,620,843	15.8	127.5
Woven shawls of wool or worsted:					
Square yards.....	895,777	600,104	4,758,652	49.3	187.4
Value.....	\$557,370	\$500,523	\$2,098,523	11.4	176.2
All-wool, union, and cotton warp blankets:					
Square yards.....	19,809,262	18,155,505	20,793,644	9.4	112.7
Value.....	\$6,242,079	\$5,200,959	\$7,153,900	20.0	127.3
All-wool, union, and cotton warp horse blankets:					
Square yards.....	7,666,873	7,315,304	5,507,074	4.8	32.8
Value.....	\$1,723,916	\$1,740,988	\$1,721,516	11.0	1.1
Carriage robes:					
Square yards.....	1,375,186	1,740,089	775,963	121.0	124.2
Value.....	\$1,240,094	\$987,109	\$646,904	25.6	52.6
Total value.....	\$2,564,018	\$3,709,311	\$3,634,133	130.9	2.1
Woolen, worsted, and union upholstery goods:					
Square yards.....	3,233,405	541,909	4,131,288	496.7	186.9
Value.....	\$1,847,722	\$786,461	\$2,365,881	134.9	166.8
Braids and picture cords, etc.:					
Running yards.....	(3)	(3)	133,859,751	.....	.....
Value.....	\$716,296	\$2,922,850	\$1,268,252	175.5	130.5
Total value of carpets and rugs.....	\$56,861,775	\$43,582,772	\$46,464,417	30.5	16.2
Ingrain carpets, 2 and 3 ply, and ingrain art carpets:					
Square yards.....	39,818,986	42,352,500	36,726,370	16.0	15.3
Value.....	\$15,577,847	\$15,405,081	\$15,924,452	1.1	13.3
Tapestry and body Brussels, tapestry velvet, Wilton, Axminster, and Moquette carpets:					
Running yards.....	43,824,109	32,423,883	36,536,565	35.2	111.3
Value.....	\$30,703,823	\$21,036,996	\$27,125,980	46.0	122.4
All other carpets:					
Square yards.....	(2)	(2)	1,394,153	.....	.....
Value.....	(2)	(2)	\$451,486	.....	.....
Smyrna carpets and rugs:					
Square yards.....	3,828,282	3,651,661	(4)	4.8	.....
Value.....	\$4,134,500	\$3,680,618	\$2,700,718	12.3	36.3
All other rugs:					
Square yards.....	6,155,493	6,195,054	6,133,767	10.6	.....
Value.....	\$6,445,605	\$3,460,077	\$261,781	86.3	1,221.7
Total value of felt goods.....	\$8,626,266	\$5,364,289	\$4,214,524	60.8	27.3
Felt cloths, endless belts, trimmings, linings, etc.:					
Square yards.....	14,060,025	6,933,524	6,662,759	102.8	4.1
Value.....	\$5,733,699	\$3,078,949	\$2,930,199	86.2	5.1
All other felts, value.....	\$2,892,567	\$2,285,340	\$1,284,325	26.6	77.9
Wool hats:					
Dozens.....	446,121	823,425	1,046,481	145.8	121.3
Value.....	\$2,290,070	\$3,166,761	\$5,229,176	127.7	139.4
Total value of yarns and partially manufactured products.....	\$69,450,915	\$49,723,385	\$38,797,490	39.7	28.2
Wool-hat bodies:					
Dozens.....	31,712	56,006	(5)	143.4	.....
Value.....	\$205,491	\$120,262	(5)	70.9	.....
Woolen (all-wool), and woolen and worsted (union or merino) yarns:					
Pounds.....	56,648,835	49,796,632	41,362,993	13.8	20.4
Value.....	\$15,509,591	\$11,748,895	\$12,590,267	32.0	16.7

1 Decrease.

2 None reported.

3 Not reported.

4 In 1890 there were reported 1,430,036 Smyrna rugs, at a value of \$2,368,000, and 127,177 square yards of Smyrna carpet, at a value of \$332,718.

5 Number of rugs reported in 1890.

TABLE 25.—WOOL MANUFACTURES—PRODUCTS, BY KIND, QUANTITY, AND VALUE, WITH PER CENT OF INCREASE: 1890 TO 1905—Continued.

KIND.	CENSUS.			PER CENT OF INCREASE.	
	1905	1900	1890	1900 to 1905	1890 to 1900
Worsted yarn and tops, and mohair and similar yarns:					
Pounds.....	64,001,546	46,784,385	29,359,182	36.8	59.4
Value.....	\$45,310,533	\$32,095,805	\$22,397,721	41.2	43.3
Cotton yarn:					
Pounds.....	1,740,312	3,531,992	3,192,936	150.7	10.6
Value.....	\$342,438	\$527,046	\$632,849	135.0	116.7
Wool rolls, noils, waste, and all other partially manufactured products:					
Pounds.....	41,350,253	23,283,240	12,850,039	77.6	81.2
Value.....	\$8,082,862	\$5,231,377	\$3,176,653	54.5	64.7
Total value of hosiery and knit goods.....		\$21,463	\$36,034		140.4
Woolen, merino, and cotton half hose:					
Dozen pairs.....	(¹)	4,290	2,438		76.0
Value.....	(²)	\$13,520	\$7,721		75.1
Woolen, merino, and cotton hose:					
Dozen pairs.....	(¹)	908	9,147		190.1
Value.....	(²)	\$3,302	\$21,363		184.5
Gloves and mittens:					
Dozen pairs.....	(¹)	1,238	1,931		135.9
Value.....	(²)	\$4,641	\$6,950		133.2
All other products.....	\$5,131,786	\$6,170,673	\$1,971,524	116.8	213.0
Amount received for contract work.....	\$1,188,933	\$1,613,054	\$154,337	126.3	945.2

¹ Decrease.² None reported.

Net value of products.—In dealing with such an industry as that with which we are now concerned it is not merely difficult—it is impossible—to ascertain the net value of its products with more than an approach to accuracy. We are confronted with duplications of materials and products at every turn. Although it is a well-known fact that, as a general statement, the woolen and worsted yarns, waste, and noils which are the product of one mill are disposed of and used by other mills, it is not true that all such products are either subjected to further processes of manufacture, or if so used are consumed in the wool industry. For example, we may refer to the case of woolen yarns of which by far the largest part is consumed in weaving mills; but there are also large quantities in the aggregate sold in the shops to women who knit stockings and other articles in the household; and this Census report shows a consumption of millions of pounds of such yarns in knitting mills which are now removed entirely from the category of wool manufactures. It is probable, therefore, that we can do no better than to follow the rule for elimination of duplications which was adopted at the Twelfth Census. The rule is as follows: Deduct from the gross value of products the cost of all waste and noils; tops; woolen, worsted, and merino yarns; hat bodies and hats in the rough reported as materials; also the amount received for contract work reported under products. The total amount thus subtracted from the gross value for the present census is \$53,915,080, from which should be subtracted the duty paid value of foreign yarns (\$232,413) imported during the census year, which leaves a net value, according to this method of calculating it, of \$327,251,336. At the census of 1900 the amount deducted was \$41,026,641 and the net value, \$255,963,843. The gross value of products in 1905 is

28.3 per cent higher than in 1900, the amount deducted—which has increased from \$41,026,641 to \$53,682,667—has increased 30.8 per cent, which indicates that mills make use of about the same proportions of raw fibers and partly manufactured materials from year to year.

Classification of products.—In classifying establishments which are engaged in the wool manufacture it is a simple matter to make a distinct grouping of mills producing carpets and rugs, and of other mills which produce felt goods. It is not quite such a simple matter to make a clear and distinct line of division between those which should be classified as woolen and those which should be classified as worsted mills, inasmuch as there are many mills which employ both woolen and worsted yarn in their weaving, and a large number which are not only able to, but actually do, change as the market requires, from worsted to woolen or from woolen to worsted. It follows that we find considerable quantities of worsted goods produced in woolen mills and of woolen goods in worsted mills. It is of course only by a combination of the two that general and accurate results can be ascertained.

The productions of the wool manufacture are classified as at the former census by groups. The first group comprises all the piece goods, the quantity of which has increased from 399,141,585 square yards in 1900 to 476,206,439 square yards in 1905; the yardage increase is 77,064,854, or 19.3 per cent. In value the increase is from \$175,209,197 to \$225,056,781, or 28.5 per cent. In the second group—shawls, blankets, and carriage robes—there is also an increase of both quantity and value, whereas there was a decrease in both between 1890 and 1900. The increase in quantity is 7.2 per cent, and in value 15.8 per cent. These two groups form the general class of woven

goods, and comprise the whole of the class except a small amount of upholstery goods.

Woven goods.—Table 26 presents a classification of substantially the products of the first and second groups, but the small amount of woven goods produced in felt and carpet mills does not appear in the table. The amount so excluded in 1905 is only 191,581 square yards, which is less than one twenty-fifth of 1 per cent of the total.

TABLE 26.—*Woven goods produced in woolen and worsted mills, with per cent of increase: 1890 to 1905.*

CLASS.	Cen- sus.	Square yards.	Per cent of in- crease.	Value.	Per cent of in- crease.
Total.....	1905	505,821,956	18.6	\$234,737,036	28.1
	1900	426,572,856	12.0	183,306,664	8.2
	1890	381,004,461		169,409,239	
All-wool, whether woolen or worsted.....	1905	260,567,488	20.4	158,390,336	34.5
	1900	216,359,702	66.3	117,757,169	44.1
	1890	130,115,152		81,742,586	
Union or cotton mixed.....	1905	63,197,407	10.2	26,288,407	13.7
	1900	57,334,570	1.8	23,111,696	14.9
	1890	56,322,882		24,304,966	
Cotton warp, with weft partly or wholly of wool, worsted, or hair (or cotton weft with warp of wool).....	1905	182,057,061	19.1	50,058,293	18.0
	1900	152,878,534	121.4	42,437,799	133.0
	1890	194,566,427		63,361,687	

¹Decrease.

It will be seen not only that the total amount of woven goods has increased largely, but that the same is true of each class of such goods. It will be understood that the class "all-wool" includes all woven goods which are composed wholly of animal fiber, whether sheep's wool, hair, or shoddy. The "union or cotton mixed" comprises such fabrics as are composed of cotton carded with wool or other animal fiber and entering into the constitution of the same yarn. The other class consists of fabrics of which either the warp or the weft is chiefly or wholly cotton.

Still another classification shows in full detail the kind, quantity, value, and value per square yard of all woven cloths except carpets and rugs and upholstery goods reported in 1900 and 1905. The fabrics are distinguished as woolen and worsted, and the woolen goods are separately shown as all-wool; union, or cotton mixed with wool on the card; and woolen goods with cotton or part cotton warp. The totals differ slightly from those in the preceding statement for the reason that in the returns for both years the woven goods produced in felt and carpet mills are included in Table 27. The amount in each case was small; for 1905 it was 191,581 yards, valued at \$83,204; and for 1900 it was 376,947 yards, valued at \$331,102.

TABLE 27.—WOVEN FABRICS—KINDS DISTINGUISHED AS WOOLEN AND WORSTED, QUANTITY, VALUE, AND VALUE PER SQUARE YARD: 1905 AND 1900.

CLASS AND KIND.	1905			1900		
	Square yards.	Value.	Value per square yard (cents).	Square yards.	Value.	Value per square yard (cents).
Total woven goods.....	506,013,537	\$234,820,240		426,949,803	\$183,637,766	
Woolen goods.						
Total, all-wool.....	133,333,399	73,196,066		104,060,656	58,126,778	
Wool cloths, doeskins, cassimeres, chevots, tweeds, indigo flannels, and broadcloths, for men's wear.....	42,487,566	29,556,252	69.6	34,551,266	22,860,783	66.2
Woolen overcoatings, cloakings, kerseys, etc., for men's or women's wear.....	22,411,530	16,934,112	75.6	18,732,922	16,135,436	86.1
Wool dress goods, sackings, tricots, ladies' cloth, broadcloth, etc., for women's wear.....	48,889,643	19,832,687	40.6	33,597,692	12,978,546	38.6
Carriage cloths of all weights.....	1,741,765	964,557	55.4	1,220,408	696,999	57.1
Flannels for underwear.....	8,710,131	2,045,858	23.5	8,345,556	2,352,086	28.2
Blankets.....	7,414,563	2,793,284	37.7	5,465,277	2,325,307	42.5
Horse blankets.....	740,237	418,219	56.5	518,452	259,221	50.0
Carriage robes.....	42,187	93,727	222.2	28,979	17,877	61.7
Woven shawls.....	895,777	557,370	62.2	600,104	500,523	83.4
Total, union or cotton mixed.....	63,197,407	26,288,407		57,334,570	23,111,696	
Unions, tweeds, chevots, cassimeres, or other goods for men's wear.....	35,103,110	15,050,726	42.9	30,767,915	13,695,830	44.5
Overcoatings and cloakings.....	5,373,053	3,353,758	62.4	6,087,366	3,518,613	57.8
Sackings, tricots, and dress goods for women's wear, opera and similar flannels.....	11,690,740	4,926,596	42.1	11,176,752	3,669,584	32.8
Flannels for underwear.....	7,273,761	1,528,928	21.0	6,217,094	1,284,578	20.7
Blankets.....	3,114,110	1,198,706	38.5	1,530,696	561,649	36.7
Horse blankets.....	618,800	222,543	36.0	1,094,537	228,943	20.9
Carriage robes.....	23,833	7,150	30.0	400,210	152,499	33.1
Total, cotton warp, wool filled.....	98,526,697	25,905,689		84,326,910	22,592,812	
Wool filling cassimeres, doeskins, jeans, tweeds, coatings, suitings, and other cotton warp goods for men's wear.....	34,602,165	10,877,081	31.4	37,160,449	11,024,538	29.7
Wool filling overcoatings and cloakings.....	8,198,406	2,478,878	30.2	3,917,498	1,430,430	36.5
Astrakhans.....					14,150	43.4
Satinets and linseys.....	22,343,617	4,077,233	18.2	13,051,729	2,873,181	22.0
Wool filling dress goods and repellents.....	12,139,080	3,230,561	26.6	7,496,898	1,890,488	25.2
Domest flannels and shirtings.....	4,285,838	709,476	18.0	4,555,013	976,465	21.4
Cotton warp blankets.....	9,340,589	2,250,089	24.1	11,159,532	2,314,003	20.7
Horse blankets.....	6,307,836	1,083,154	17.2	5,702,315	1,252,824	22.0
Carriage robes.....	1,309,166	1,139,217	87.0	1,250,900	816,733	65.3

TABLE 27.—WOVEN FABRICS—KINDS DISTINGUISHED AS WOOLEN AND WORSTED, QUANTITY, VALUE, AND VALUE PER SQUARE YARD: 1905 AND 1900—Continued.

CLASS AND KIND.	1905			1900		
	Square yards.	Value.	Value per square yard (cents).	Square yards.	Value.	Value per square yard (cents).
<i>Worsted goods.</i>						
Total, worsted.....	210,956,034	\$109,430,078	.....	181,227,667	\$79,806,480	.....
Worsted coatings, serges, and suitings for men's wear.....	59,592,811	56,731,196	95.2	54,033,679	43,003,550	79.6
Worsted overcoatings and cloakings.....	1,057,668	546,170	51.6	877,133	567,390	64.7
Worsted dress goods, cashmeres, serges, and other worsted goods for women's wear.	66,428,825	27,802,181	41.9	57,712,086	16,316,392	28.3
Mohair dress goods.....	268,416	163,648	61.0	.....	.....	.....
Worsted filling cassimeres, ddeskins, jeans, tweeds, coatings, suitings, and other cotton warp goods for men's wear.....	16,688,620	6,969,402	41.9	12,663,719	7,267,508	57.4
Worsted filling dress goods, delaines, cashmeres, serges, mohairs, alpacas, and other stuffs for women's wear.....	49,300,369	12,711,554	25.8	45,784,011	10,423,206	22.8
Linings, Italian cloths, and lastings.....	17,619,325	4,505,927	25.6	10,157,039	2,228,434	21.9

The separate returns of these fabrics for 1905 are shown in Table 46 at the end of this report.

The aggregate production of all-wool fabrics for 1905 was 133,333,399 square yards, having a value of \$73,196,066, which was 28.1 per cent more in quantity and 25.9 per cent more in value than at the census of 1900. The most important items in this class of goods are the first three mentioned in Table 27. The first and largest item according to value in the whole list of all-wool goods is that of wool cloths for men's wear, comprising cassimeres, cheviots, broadcloths, etc. This item shows a considerable increase in quantity, 23 per cent, and a still larger increase, 29.3 per cent, in value. At the last census an increase of quantity during the decade 1890 to 1900 was noted, but a large reduction of average cost per square yard accompanied it. The average value in 1880 was 93.9 cents per square yard, which declined to 66.2 cents in 1900. The present returns show an average of 69.6 cents. Changes of this sort do not necessarily imply anything more than a small advance or decline in the cost of the raw material, and even a higher or lower market rate might be masked by a larger or smaller use of shoddy in the constitution of goods. It is to be noted that there has been an increase in the average value of three of the six classes of cloths for men's wear—wool cloths, etc.; unions, tweeds, etc.; wool filling cassimeres, etc.; satinets and linseys; worsted coatings, etc.; and worsted filling cassimeres, etc.—the three exceptions being unions, tweeds, etc.; satinets and linseys; and worsted filling cassimeres, etc. There was an increase in quantity of all except the wool filling cassimeres, etc. Combining the six classes, we find that the aggregate quantity in 1905 was 210,817,889 square yards, as compared with 182,228,757 square yards in 1900, and the value \$123,261,890 and \$100,725,390 in the two years, respectively. The large increase in the value of worsted coatings, amounting to almost 20 per

cent, is not accounted for by the increase in the price of wool, and seems to indicate a higher average quality.

In quantity the second largest group of fabrics consists of women's dress goods, which are in six classes: Wool dress goods, etc.; sackings, tricots, etc.; wool filling dress goods, etc.; worsted dress goods, etc.; mohair dress goods; and worsted filling dress goods, etc. The aggregate quantity in 1905 is reported at 188,717,073 square yards, against 155,767,439 square yards in 1900, with a value of \$68,667,227 in 1905 and \$45,278,216 in 1900—an increase of 21.2 per cent in quantity and 51.7 per cent in value. As between women's goods classified as woollen and worsted there has been an increase of 20,448,121 square yards of woollen stuffs, as compared with 12,501,513 square yards of worsteds, showing a larger proportional increase of woollens, which fact is again contrary to the general impression derived from trade circles. In average price there was a moderate increase in each of the classes of woollen goods and of worsted filling cassimeres, and a large increase in the case of pure worsteds.

Overcoatings and cloakings are in four classes—all-wool, union, cotton warp, and worsted—all of which, except the union goods, show an increase in quantity, accompanied in each case, except in that of union goods, by a considerable decrease in average value. The aggregate amount of such fabrics reported in 1905 was 37,040,657 square yards, and in 1900, 29,614,919 square yards. Their value was placed at \$23,312,918 in 1905, and at \$21,651,869 in 1900. The increase in quantity was 25.1 per cent, but in value only 7.7 per cent. By far the largest amount of overcoatings consists of those classed as all-wool. For obvious reasons the use of cotton, either in the form of cotton warp or as carded with wool, does not produce a popular fabric for outer wear in winter.

The manufacture of flannels seems to have remained almost stationary during the last census period. The aggregate quantity now reported, in the three classes—all-wool, union, and cotton warp—is 20,269,730 square yards, which compares with 20,117,663 square yards in 1900. The total value shows a decrease from \$4,613,129 in 1900 to \$4,344,262 in 1905. It is quite possible that neither of these comparisons, nor the totals on which they are based, should be regarded as significant, inasmuch as there are goods which are in reality flannels in every essential of yarn and weaving which, owing to changing fashions, sometimes are and sometimes are not classed as flannels.

The only other large group of products which it is necessary to consider in detail consists of blankets, which, likewise, are all in the category of woollen goods, and are in three classes—all-wool, union, and cotton warp. But they include a great variety of articles, from the finest all-wool blanket to the coarsest horse blanket chiefly or wholly of hair. Carriage robes are also properly included, although many goods of this class differ widely from an ordinary blanket. In the aggregate there has been but little change since 1900, either in quantity or value. Combining all these goods, we reach an aggregate of 28,911,321 square yards, as compared with 27,210,898 square yards in 1900, and a value of \$9,206,089 and \$7,929,056 in the two years, respectively. Of blankets proper, there were 19,869,262 square yards in 1905, valued at \$6,242,079, against 18,155,505 square yards, valued at \$5,200,959, in 1900; of horse blankets, 7,666,873 square yards, valued at \$1,723,916, in 1905, and 7,315,304 square yards, valued at \$1,740,988, in 1900; of carriage robes, 1,375,186 square yards, valued at

\$1,240,094, in 1905, and 1,740,089 square yards, valued at \$987,109, in 1900.

Miscellaneous products.—The third group of products of the wool industry, which includes such diverse articles as upholstery goods, braids, and picture cords, etc., shows an extraordinary variation. The quantity of upholstery goods diminished in 1900, as compared with 1890, by nearly seven-eighths, but in 1905 shows an amount almost six times as great as in 1900. The other item which in value was more than doubled between 1890 and 1900 is now only one-fourth as much as in 1900. As a result of this combination the group shows a decrease of 30.9 per cent as a whole.

Carpets and rugs.—The production of carpets and rugs constitutes one of the great branches of the wool industry. As in the case of the worsted manufacture, an increase in the importance of the industry has been shown at every census since the manufacture was undertaken in this country. How completely the home manufacturer has possessed himself of the American market is shown by the fact that whereas the present statistics show the manufacture of 82,670,843 square yards of carpets and rugs, valued at \$56,861,775, the amount of carpets and carpeting (which corresponds closely to the carpets and rugs of home manufacture) imported in the year ended June 30, 1904, was but 848,976 square yards, valued at \$2,798,148—but little more than 1 per cent of the home product in quantity and less than 5 per cent in value. As is well known, only the most costly carpets and rugs are imported in any considerable quantity. Table 28, which follows, shows the kind and quantity of carpets produced in the United States, as ascertained at each census beginning with 1880:

TABLE 28.—QUANTITY AND KIND OF CARPETS PRODUCED: 1880 TO 1905.

CENSUS.	Total carpets (running yards).	Ingrain, 2-ply (square yards).	Ingrain, 3-ply (square yards).	Ingrain, art (square yards).	Venetian (running yards).	Tapestry Brussels (running yards).	Body Brus- sels (running yards).	Wilton (running yards).
1905	83,643,095	30,492,156	3,065,795	6,261,035		18,798,765	4,032,216	1,730,496
1900	74,673,638	136,698,292	13,222,557	2,328,906		11,649,932	3,581,991	(²)
1890	74,643,733	132,918,659	3,251,368	553,513		20,008,961	9,442,348	(²)
1880	39,282,634	121,986,434	1862,394		1,984,201	9,441,195	4,077,190	(²)

CENSUS.	Tapestry vel- vet (running yards).	Wilton and Wilton velvet (running yards).	Axminster and Moquette (run- ning yards).	Cottage (square yards).	Dutch (square yards).	Rag (square yards).	All other (square yards).
1905	10,711,051	(³)	8,551,581				
1900	5,706,754	4,782,835	6,702,371				
1890	2,482,123	1,030,101	13,572,527			171,310	1,312,818
1880	60,000	157,629	303,366	241,220	12,000	157,005	

¹ Does not include a small quantity of carpet made in woollen mills.

² Wilton carpet was included in the class "Wilton and Wilton velvet" prior to 1905.

³ Carpet reported in 1905 as Wilton velvet included with tapestry velvet, and the classification of Wilton velvet abandoned.

The total number of running yards of carpet for 1905 is 83,643,095, as compared with 74,673,638 in 1900. There has been a slight decrease in one of the two great divisions of this manufacture, namely, ingrain carpets, the aggregate of which at this census was 39,818,986 square yards, against 42,249,755 square yards in 1900. This decrease, however, is much more than offset by a large increase in the amount of the three-quarter yard goods, comprising the Brussels, Wiltons, tapestries, and similar carpetings. The total running yards of these goods in 1905 was 43,824,109,

which is equivalent to 32,868,082 square yards, and brings the total to 72,687,068 square yards, which compares with 66,567,667 square yards in 1900 and 64,125,589 square yards in 1890. The increase in quantity in four years has been much greater than that in the preceding decade. Another table, here-with presented, brings together the quantities and values of the several kinds of carpets, as reported in 1900 and 1905, in such a way as to enable a comparison of the current average value of each class of goods at the censuses of 1900 and 1905.

TABLE 29.—CARPETS, BY KIND, QUANTITY, VALUE, AND VALUE PER YARD: 1905 AND 1900.

KIND.	1905			1900		
	Square yards.	Value.	Value per yard (cents).	Square yards.	Value.	Value per yard (cents).
Aggregate.....	72,687,068	\$46,281,670	.....	66,567,667	\$36,413,553	.....
Total.....	39,818,986	15,577,847	.....	42,249,755	15,376,557	.....
Ingrain, 2-ply.....	30,492,156	11,841,732	38.8	36,698,292	13,222,657	36.0
Ingrain, 3-ply.....	3,065,795	1,445,570	47.2	3,222,557	1,146,273	35.6
Ingrain, art.....	6,261,035	2,290,545	36.6	2,328,906	1,007,627	43.3
Total.....	Running yards. 43,824,109	30,703,823	.....	Running yards. 32,423,883	21,036,996	.....
Tapestry Brussels.....	18,798,765	9,955,043	53.0	11,649,932	5,520,665	47.4
Body Brussels.....	4,032,216	3,898,675	96.7	3,581,991	2,979,867	83.2
Wilton.....	1,730,496	2,726,667	157.6	(2)	(2)	.....
Tapestry velvet.....	10,711,051	7,754,681	72.4	5,706,754	3,743,353	65.6
Wilton and Wilton velvet.....	(3)	(3)	.....	4,782,835	4,030,842	84.3
Axminster and Moquette.....	8,551,581	6,368,757	74.5	6,702,371	4,762,269	69.6

¹ Reported as three-fourths yard wide, equivalent to 32,868,082 square yards in 1905 and 24,317,912 square yards in 1900.

² Wilton carpet was included in the class of "Wilton and Wilton velvet" prior to 1905.

³ Carpet reported in 1905 as Wilton velvet included with tapestry velvet and the classification of Wilton velvet abandoned.

The striking feature of the above statistics is the large but somewhat irregular advance in average value throughout the list, with the exception of art ingrains, in which cases peculiar conditions undoubtedly caused the variation. The extremely high cost of carpet wool in the year covered by the present census returns is ample explanation of the advance in the prices of carpets.

The distinction between carpets and rugs—those at least which are woven like the carpets mentioned in the preceding statement—is a shadowy one, for which there seems but one reason sufficient to cause their tabulation separately, namely, to show the increasing favor with which floor coverings woven in a single piece are held. At prior censuses a distinction was made between Smyrna carpets and Smyrna rugs. At the census of 1905 they have been combined and included under the subdivision of rugs. Table 30 presents a comparison of the kinds, quantity, and value of rugs reported in 1890, 1900, and 1905. Prior to the year 1900 the quantity was reported in the number of pieces. The adoption of the square yard as a standard gives an opportunity for the first time to make an intelligible comparison.

TABLE 30.—Production of rugs, by kind, quantity, and value: 1890 to 1905.

	1905	1900	1890
Total:			
Square yards.....	9,983,775	9,842,383	.....
Value.....	\$10,580,105	\$7,137,605	\$2,961,499
Tapestry—			
Square yards.....	2,009,834	18,750	.....
Value.....	\$1,509,673	\$9,000	.....
Wilton—			
Square yards.....	1,097,186	339,784	140,644
Value.....	\$1,983,777	\$545,967	\$87,702
Axminster and Moquette—			
Square yards.....	1,767,920	327,598	160,000
Value.....	\$2,107,383	\$342,262	\$66,000
Ingrain—			
Square yards.....	874,511	393,417	16,278
Value.....	\$494,912	\$168,324	\$34,262
Smyrna carpets and rugs—			
Square yards.....	3,828,282	3,651,661	(2)
Value.....	\$4,134,500	\$3,680,618	\$2,699,718
Other woolen rugs—			
Square yards.....	406,042	45,111,173	126,845
Value.....	\$349,860	\$2,391,434	\$73,617

¹ Quantities in 1890 are all number of rugs instead of square yards.

² In 1890 there were reported 1,429,536 Smyrna rugs, at a value of \$2,367,000, and 127,177 square yards of Smyrna carpets, at a value of \$332,718.

³ Does not include the value of a small quantity of rugs made in felt mills.

⁴ Does not include a small quantity of rugs made in knit mills.

The number of square yards of rugs reported in 1905 is 9,983,775, an increase over 1900 of 141,392 square yards. Their value was \$10,580,105, as compared with \$7,137,605 in 1900. The general average

value per square yard is now \$1.06, against 73 cents in 1900, a result which is due partly to the very great increase in the amount of the highest priced goods manufactured, and partly to the higher cost of wool. The amount of Wilton rugs has increased from 339,784 square yards to 1,097,186, or more than three times as much, and that of Axminster and Moquette rugs, which was only 327,598 square yards in 1900, is now reported at 1,767,920 square yards, or nearly five and a half times as much.

Uniting the two classes, carpets and rugs, the aggregate quantity now reported is 82,670,843 square yards, as compared with 76,410,050 square yards in 1900, an increase of 8.2 per cent. There has been a decline in the amount of ingrain carpets and rugs of 1,949,675 square yards, but an increase in the amount of all classes of three-quarter yard goods; the largest increases are in the tapestries.

Felt goods.—The production by felt goods mills included 191,581 square yards of various kinds of woolen and worsted goods, valued at \$83,204. The felt mills are evidently operating less and less upon such goods, as the quantity reported in 1900 was 347,916 square yards, of a value of \$312,235. In the production of felt goods proper the industry shows a gratifying growth as Table 31 indicates.

TABLE 31.—*Felt goods, by kind, quantity, and value: 1905 and 1900.*¹

KIND.	1905		1900	
	Quantity.	Value.	Quantity.	Value.
Total		\$8,293,093		\$5,285,074
Felt cloth, square yards	3,689,610	1,830,627	2,056,002	548,543
Endless belts, pounds	1,770,124	1,707,216	1,114,357	1,080,835
Boot and shoe linings, square yards.	2,823,137	781,450	1,052,538	540,110
Hair felting, square yards	605,214	191,998	125,000	56,950
Trimming and lining felts, square yards	5,145,340	1,188,908	2,469,830	796,718
All other felts		2,592,894		2,261,918

¹This table does not include a small quantity of felt goods made by other branches of the wool industry.

²Reported in square yards in 1900.

There has been a large increase in square yards in every class of felt goods, amounting to 79.5 per cent in felt cloths, 168.2 per cent in boot and shoe linings, 384.2

per cent in hair feltings, and 108.3 per cent in trimming and lining felts. The increase in endless belts can not be stated, as the amount was reported in square yards in 1900 and in pounds in 1905. Inasmuch as the total increase in reported value was only 56.9 per cent, the indication is that on the whole a lower scale of prices prevailed.

Wool hats.—The production of the establishments manufacturing wool hats shows a decrease. The number of hats reported in 1905 is 446,121 dozens, valued at \$2,290,070, as compared with 811,425 dozens, valued at \$3,161,361, in 1900. These mills also produced 300 dozens of "fur hats," now classified as felt hats, valued at \$5,400, in 1905, against 43,994 dozens, valued at \$285,705, in 1900. There was also a large decrease in the number and value of wool hat bodies and hats in the rough.

Partially manufactured products.—The items constituting the group of partially manufactured goods embrace yarns, noils, waste, shoddy, and wool hat bodies and hats in the rough. The several kinds of yarn are by far the most important products of the group, the production of which in 1900 amounted to 100,113,009 pounds, and has now reached the amount of 122,390,693 pounds, or an increase of 22.3 per cent.

DIVISIONS OF THE WOOL INDUSTRY.

The five subdivisions of the wool industry, as classified by the trade and in the census statistics, are worsted goods, woolen goods, carpets and rugs, felt goods, and wool hats.

Worsted goods.—The worsted industry, which was hardly known in 1860, when there were but three mills of this class in the country, has grown with extraordinary rapidity, and in 1900 for the first time exceeded the class of woolen goods in the amount of capital employed, the cost of materials, and the value of products. It was and is still inferior to the older branch in the number of wage-earners and the amount of their compensation, but the margin has become so small that undoubtedly at the next enumeration it will have taken first rank in these respects. Table 32 shows the leading facts regarding the worsted industry at each enumeration from 1860 to 1905.

TABLE 32.—WORSTED GOODS—COMPARATIVE SUMMARY, WITH PER CENT OF INCREASE: 1860 TO 1905.

	CENSUS.						PER CENT OF INCREASE.				
	1905	1900	1890	1880	1870	1860	1900 to 1905	1890 to 1900	1880 to 1890	1870 to 1880	1860 to 1870
Number of establishments	226	186	143	76	102	5	21.5	30.1	88.2	125.5	3,300.0
Capital	\$162,464,929	\$132,168,110	\$68,085,116	\$20,374,043	\$10,085,778	\$3,230,000	22.9	94.1	234.2	102.0	212.3
Salaries officials, clerks, etc., number	1,847	1,309	2,615	(¹)	(²)	(³)	34.9	122.6	.....	.....	.....
Salaries	\$2,904,960	\$2,342,218	\$935,217	(¹)	(²)	(³)	24.0	150.4	.....	.....	.....
Wage earners, average number	69,251	57,008	42,978	18,803	12,920	2,378	21.5	32.6	128.6	45.5	443.3
Total wages	\$26,269,787	\$20,092,738	\$14,044,966	\$5,683,027	\$4,368,857	\$543,684	30.7	34.4	163.0	30.1	703.6
Wages	\$14,493,965	\$11,300,071	\$8,430,625	(¹)	(²)	(³)	16.8	34.2	196.4	66.5	251.0
Men 16 years and over	29,883	25,595	19,071	6,435	3,864	1,101	28.3	34.0	.....	.....	.....
Wages	\$10,379,154	\$7,831,109	\$5,877,717	(¹)	(²)	(³)	24.4	28.6	112.0	32.5	460.1
Women 16 years and over	32,130	25,829	20,082	(¹)	(²)	(³)	32.5	33.2	.....	.....	.....
Wages	\$10,379,154	\$7,831,109	\$5,877,717	(¹)	(²)	(³)	29.6	46.0	32.1	52.0	.....
Children under 16 years	7,238	5,584	3,825	(¹)	(²)	(³)	45.3	51.0	.....	.....	.....
Wages	\$1,396,663	\$961,558	\$636,624	(¹)	(²)	(³)	22.7	37.6	.....	.....	.....
Miscellaneous expenses	\$8,301,579	\$6,767,611	\$4,917,760	(¹)	(²)	(³)	42.3	52.0	130.3	55.9	485.7
Cost of materials used	\$109,658,481	\$77,075,222	\$50,706,769	\$22,013,628	\$14,208,198	\$2,442,775	37.8	51.9	136.1	51.9	496.8
Value of products	\$165,745,052	\$120,314,344	\$79,194,652	\$33,549,942	\$22,090,331	\$3,701,378	18.0	81.6	214.5	19.7	.....
Number of spindles	1,618,207	1,371,026	755,080	240,118	200,617	(¹)	17.2	38.1	32.5	135.2	.....
Number of looms	30,910	26,372	19,095	14,411	6,128	(¹)	9.9	77.4	133.7	78.9	.....
Number of combing machines	1,312	1,194	673	288	161	(¹)	.....	.....	.....	.....	.....

¹ Decrease.² Includes proprietors and firm members, with their salaries; number only reported in 1900 and 1905, but not included in this table.³ Not reported separately.⁴ Not reported.

The number of establishments has increased in the interval between the last two censuses from 186 to 226, and the capital employed from \$132,168,110 to \$162,464,929. The average capital per establishment is a little short of \$720,000, which is in striking contrast to the average capital of woolen mills—\$177,000—and even this average capital of woolen mills has been increased during the last five years by the dropping out of more than 200 small establishments. The total capital of worsted mills has increased by 22.9 per cent, the number of wage-earners by 21.5 per cent, and their total wages by 30.7 per cent. The rate of increase in the cost of materials used and the value of products is almost twice as great as the above percentages—in the case of materials, 42.3 per cent; in the products, 37.8 per cent. The worsted industry consumed by far the largest amount of wool, and that of the highest price; and much the smallest amount—save in the cases of felt goods and wool hats—of any materials that may be denominated adulterants. The quantity of scoured wool reported as consumed amounted to 139,173,774 pounds, which was very nearly one-half the total consumption by all branches of the industry, namely, 282,194,618 pounds. The cost of this wool “in condition purchased” was \$62,734,716, out of a total consumption by all branches of \$119,748,779 in value. The total weight of all other fibers purchased in the raw state consumed in worsted mills, with the single exception of cotton, was 5,740,249 pounds, which was

only 4.1 per cent of the weight of scoured wool—a fact which bears abundant testimony to the purity of the goods produced in the worsted mills. Undoubtedly a large part of such other materials was used by the worsted mills in the production of woolen goods, of which, in the aggregate, they made a large amount.

Woolen goods.—The card wool branch of the wool industry is the great historic branch, and the production of worsted yarn and worsted goods upon anything like the scale upon which it is now seen is comparatively recent. But a change of taste which bids fair to be permanent has caused a great invasion of many branches of the woolen industry by the producers of worsted goods. An inspection of Table 33, which follows, suggests that there was a considerable increase in the production of woolen goods in 1905 as compared with 1900. In the report at the last census it was noted that the largest production of wools reported at any census year was in 1880, and the figures for 1890 and 1900 showed a decrease in both decades. It will be seen that the expectation then expressed has not been verified by the statistics presented for 1905, although the number of establishments reporting is only 792 as compared with 1,035 in 1900—a decrease of 23.5 per cent, which has already been explained as a result of omitting from the statistics custom carding mills and of the discontinuance of operations by small and unprofitable mills. Almost every other item in the summary shows an increase.

MANUFACTURES.

TABLE 33.—WOOLEN GOODS—COMPARATIVE SUMMARY, WITH PER CENT OF INCREASE: 1850 TO 1905.

	CENSUS.							PER CENT OF INCREASE.					
	1905	1900	1890	1880	1870	1860	1850	1900 to 1905	1890 to 1900	1880 to 1890	1870 to 1880	1860 to 1870	1850 to 1860
Number of establishments.....	792	1,035	1,311	1,990	2,891	1,200	1,559	123.5	121.1	134.1	131.2	129.4	119.2
Capital.....	\$140,302,488	\$124,386,262	\$130,989,940	\$96,095,564	\$98,824,531	\$30,862,654	\$28,118,650	12.8	15.0	36.3	12.8	220.2	9.8
Salaries officials, clerks, etc., number.....	2,477	2,246	2,436	(³)	(³)	(³)	(³)	10.3	17.8	.....	.....	.....	.....
Salaries.....	\$3,430,855	\$2,934,048	\$2,339,737	(³)	(³)	(³)	(³)	16.9	25.4	.....	.....	.....	.....
Wage-earners, average number.....	72,747	68,893	76,915	86,504	80,053	41,360	39,252	5.6	10.4	11.1	8.1	93.6	36.7
Total wages.....	\$28,827,556	\$24,757,006	\$26,139,194	\$25,836,392	\$26,877,575	\$9,610,254	(³)	16.4	15.3	1.2	13.9	179.7	.....
Men 16 years and over.....	44,452	40,601	42,130	46,978	42,728	24,841	22,678	9.5	13.6	10.3	9.9	72.0	9.5
Wages.....	\$19,850,052	\$16,913,731	\$17,059,323	(³)	(³)	(³)	(³)	17.4	10.9	.....	.....	.....	.....
Women 16 years and over.....	24,552	24,535	30,159	29,372	27,682	16,519	16,574	0.1	18.6	2.7	6.1	67.6	10.3
Wages.....	\$8,184,449	\$7,218,087	\$8,371,274	(³)	(³)	(³)	(³)	13.4	13.8	.....	.....	.....	.....
Children under 16 years.....	3,743	3,757	4,626	10,154	(³)	(³)	(³)	10.4	18.8	54.4	5.3	.....	.....
Wages.....	\$793,055	\$625,188	\$708,597	(³)	(³)	(³)	(³)	26.9	11.8	.....	.....	.....	.....
Miscellaneous expenses.....	\$8,218,766	\$7,268,634	\$8,402,624	(³)	(³)	(³)	(³)	13.1	13.5	.....	.....	.....	.....
Cost of materials used.....	\$87,830,825	\$71,011,956	\$82,270,335	\$100,845,611	\$96,432,601	\$36,586,287	\$25,755,991	23.7	13.7	18.4	4.6	163.6	42.0
Value of products.....	\$142,196,658	\$118,450,158	\$133,577,977	\$160,606,721	\$155,405,358	\$61,894,986	\$43,207,545	20.1	11.3	16.8	3.3	151.1	43.3
Number of spindles.....	2,129,727	1,906,581	1,815,280	1,756,746	1,845,496	(³)	(³)	11.7	5.0	3.3	14.8	.....	.....
Number of looms.....	32,957	34,881	39,118	35,654	34,183	(³)	(³)	15.5	10.8	9.8	4.2	.....	.....

¹ Decrease.² Includes proprietors and firm members, with their salaries; number only reported in 1900 and 1905, but not included in this table.³ Not reported separately.⁴ Not reported.

Although the number of establishments has decreased by 243, the capital has increased by \$15,916,226, a consequence of the establishment of a small number of very large corporations. The number of wage-earners has increased 5.6 per cent, the total wages 16.4 per cent, the cost of materials 23.7 per cent, and the value of products 20.1 per cent. The number of spindles is 223,146 greater than in 1900, an increase of 11.7 per cent, but the number of looms has decreased by 1,924—an apparently somewhat singular and anomalous change, but it is undoubtedly to be explained by two facts—the discontinuance of small mills and the introduction of improved and efficient machinery in the new establishments.

The indication of these figures, as has been observed, does not bear out the situation as it has appeared to the trade and to trade papers; but it may be said in explanation of these statistics, that they indicate merely an increase in the calendar year 1904 over the twelve-month from June 1, 1899, to May 31, 1900. The earlier year was, as is well known, a year of light

production comparatively, and the year 1904 was a much better year for the woolen industry than that which preceded or than that which followed it; in fact, this branch of the manufacture since the census year 1904 has been in an extremely unsatisfactory condition.

Turning now to the consumption of materials and the products of woolen mills we find that at the census of 1905 they used 157,335,727 pounds of wool “in condition purchased,” as compared with 150,200,616 pounds in 1900, an increase of 4.8 per cent. The quantity of shoddy has apparently increased by 49.1 per cent—from 66,855,105 pounds to 99,694,747 pounds. It has already been suggested that this increase is probably much less than this in consequence of the amount shown in 1900 having been partly estimated, whereas the amount now given rests entirely upon actual returns.

Carpets and rugs.—The carpet and rug industry has made large progress during the last five years, as indicated by the following comparative summary:

TABLE 34.—CARPETS AND RUGS, OTHER THAN RAG—COMPARATIVE SUMMARY, WITH PER CENT OF INCREASE: 1860 TO 1905.

	CENSUS.						PER CENT OF INCREASE.				
	1905	1900	1890	1880	1870	1860	1900 to 1905	1890 to 1900	1880 to 1890	1870 to 1880	1860 to 1870
Number of establishments.....	139	133	173	195	215	213	4.5	123.1	111.3	19.3	0.9
Capital.....	\$56,781,074	\$44,449,299	\$38,208,842	\$21,468,587	\$12,540,750	\$4,721,708	27.7	16.3	78.0	71.2	165.6
Salaries officials, clerks, etc., number.....	1,023	687	385	(³)	(³)	(³)	48.9	78.4	.....	.....	.....
Salaries.....	\$1,396,691	\$881,398	\$510,857	(³)	(³)	(³)	58.5	72.5	.....	.....	.....
Wage-earners, average number.....	33,221	28,411	28,736	20,371	12,098	6,681	16.9	11.1	41.1	68.4	81.1
Total wages.....	\$13,724,233	\$11,121,383	\$11,122,259	\$6,835,218	\$4,681,718	\$1,545,692	23.4	(³)	62.7	46.0	202.9
Men 16 years and over.....	16,930	13,860	13,655	10,104	6,808	3,910	22.2	1.5	35.1	48.4	74.1
Wages.....	\$8,271,441	\$6,651,180	\$6,510,457	(³)	(³)	(³)	24.4	2.2	.....	.....	.....
Women 16 years and over.....	14,408	12,468	13,076	8,570	4,316	2,771	15.6	14.6	52.6	98.6	55.8
Wages.....	\$5,084,201	\$4,113,142	\$4,248,249	(³)	(³)	(³)	23.6	13.2	.....	.....	.....
Children under 16 years.....	1,883	2,083	2,005	1,697	974	(³)	19.6	3.9	18.2	74.2	.....
Wages.....	\$368,591	\$367,061	\$363,553	(³)	(³)	(³)	3.2	1.8	.....	.....	.....
Miscellaneous expenses.....	\$4,162,146	\$2,751,879	\$1,819,441	(³)	(³)	(³)	51.2	51.3	.....	.....	.....
Cost of materials used.....	\$37,947,954	\$27,228,719	\$28,644,905	\$18,984,877	\$13,577,993	\$4,417,986	39.4	14.9	50.9	39.8	207.3
Value of products.....	\$61,586,433	\$48,192,351	\$47,770,193	\$31,792,802	\$21,761,573	\$7,857,636	27.8	0.9	50.3	46.1	176.9
Number of spindles.....	255,347	209,206	208,858	115,109	(³)	(³)	22.1	0.2	81.4	.....	.....
Number of looms.....	13,853	12,511	11,235	7,252	5,426	(³)	10.7	11.4	54.9	33.7	.....

¹ Decrease.² Includes proprietors and firm members, with their salaries; number only reported in 1900 and 1905, but not included in this table.³ Not reported separately.⁴ Less than one-tenth of 1 per cent.⁵ Not reported.

The amount of capital shows the large increase of 27.7 per cent; the number of wage-earners an increase of 16.9 per cent; the amount of wages, 23.4 per cent; cost of materials, 39.4 per cent; and the value of products, 27.8 per cent. These last two items emphasize the fact, which has already been brought out otherwise, that the industry has had to deal during the last five years with a puzzling problem in the matter of a great increase in the price of carpet wool. The total amount of wool used "in condition purchased" was 51,320,521 pounds at a cost of \$10,431,146, as compared with 51,871,334 pounds, valued at \$8,104,107, in 1900; from which it appears that whereas the quantity used has decreased about 1 per cent, the cost has increased 28.7 per cent. The quantities of materials used in the carpet manufacture at the last three census periods are indicated in Table 35.

TABLE 35.—Materials used in the carpet manufacture: 1890 to 1905.

	1905 (pounds).	1900 (pounds).	1890 (pounds).
Total	196,241,691	172,973,472	145,556,669
Foreign wool, in condition purchased ..	50,463,653	51,761,523	54,742,224
Domestic wool, in condition purchased ..	856,868	109,811	2,139,332
Hair, all kinds	6,805,802	6,189,757	4,647,025
Cotton	1,997,369	1,943,942	1,725,761
Tailors' clippings, rags, etc.	371,822	(¹)	(¹)
Shoddy	2,297,806	744,233	598,512
Waste, noils, and tops	3,779,251	2,525,054	892,548
Woolen yarn	32,431,400	32,996,316	18,763,201

¹ Not reported separately.

TABLE 35.—Materials used in the carpet manufacture: 1890 to 1905—Continued.

	1905 (pounds).	1900 (pounds).	1890 (pounds).
Worsted yarn	11,355,993	9,218,267	10,555,799
Merino yarn	1,036,138	237,970	.....
Cotton yarn	27,421,831	19,823,561	17,920,498
Linen yarn	8,228,200	8,388,211	9,719,242
Jute and other yarns	49,195,558	39,034,827	23,852,517
Foreign and domestic wool, scoured....	31,551,895	37,560,231	35,726,837

The amount of wool "in condition purchased" shows very little decrease from 1900 to 1905—only 1 per cent—but the amount of scoured wool shows a decrease amounting to 16 per cent, indicating that on the average there was a much larger shrinkage of wool in its preparation for the spindle. The total quantity of all fibrous materials used, treating the wool as "in condition purchased" instead of as scoured, was 196,241,691 pounds, an increase of a little more than 23,000,000 pounds, as compared with 1900. Ten million pounds of this increase was chiefly jute yarn, 2,000,000 pounds in round numbers was worsted yarn, and 1,500,000 pounds was shoddy. The other changes were unimportant.

Table 36 shows the number of looms in carpet factories in each of the last three census years, classified according to the character of the goods manufactured.

TABLE 36.—CARPET MANUFACTURES—LOOMS: 1890 TO 1905.

CENSUS.	Aggre- gate.	LOOMS ON CARPETS AND RUGS.																		LOOMS ON WOOLEN OR WORSTED GOODS.		
		Total.	Power.	Hand.	Ingrains.				Venetian.		Tapestry.		Body Brus- sels (pow- er).	Wilton (pow- er).	Ax- min- ster (pow- er).	Mo- quette (pow- er).	Rug.		Power.		Hand.	
					Power.	Hand.	Broad.		Pow- er.	Hand.	Brus- sels (pow- er).	Velvet (pow- er).					Power.	Hand.	Broad.	Nar- row.		
							Power.	Hand.														
1905.....	13,853	11,692	11,002	690	4,189	82	412	42	88	3	1,207	1,047	549	639	1,306	127	1,438	563	805	1,356	.....
1900.....	12,511	10,754	9,706	1,048	4,354	92	246	1	80	.....	1,064	737	544	507	611	150	1,383	955	814	897	46
1890.....	11,235	10,898	8,300	2,598	4,214	631	.....	.....	109	157	1,498	58	1,224	62	95	462	578	1,810	194	44	99

The total number of looms has increased from 12,511 in 1900 to 13,853 in 1905; the carpet looms, from 10,754 to 11,692. There has been an increase in the number of power looms of 1,296, but a decrease of hand looms of 358. There were less than a third as many hand looms reported at this census as at that of 1890. Of the 690 hand looms reported for 1905, 563 were employed in the manufacture of Smyrna rugs, and 403 of them were operated in New Jersey and 143 in

Pennsylvania. In fact the use of hand looms is confined almost exclusively to these two states, which report 617 out of the total of 690.

Felt goods.—The felt goods industry is not large in comparison with the three branches which have already been mentioned, but it is a growing industry. Table 37 gives the principal facts in relation to it at the censuses of 1890, 1900, and 1905.

TABLE 37.—*Felt goods—comparative summary, with per cent of increase: 1890 to 1905.*

	CENSUS.			PER CENT OF INCREASE.	
	1905	1900	1890	1900 to 1905	1890 to 1900
Number of establishments...	39	36	34	8.3	5.9
Capital.....	\$9,667,136	\$7,125,276	\$4,460,621	35.7	59.7
Salaries.....	201	136	124	47.8	9.7
Wage-earners, average number.....	\$350,594	\$231,065	\$157,916	51.7	46.3
Total wages.....	3,254	2,688	2,142	21.1	25.5
Men 16 years and over.....	\$1,356,754	\$1,024,835	\$883,380	32.4	16.0
Wages.....	2,546	1,957	1,474	30.1	32.8
Women 16 years and over.....	\$1,135,013	\$820,637	\$721,796	38.3	13.7
Wages.....	699	658	506	6.2	30.0
Children under 16 years.....	\$219,147	\$191,090	\$134,273	14.7	42.3
Wages.....	9	73	162	287.7	254.9
Miscellaneous expenses.....	\$2,594	\$13,108	\$27,311	80.2	252.0
Cost of materials used.....	\$612,766	\$356,164	\$232,871	72.0	52.9
Value of products.....	\$5,754,026	\$3,801,028	\$2,809,937	51.4	35.3
Number of spindles.....	\$8,948,594	\$6,461,691	\$4,654,768	38.5	38.8
Number of looms.....	17,817	24,286	13,829	226.6	75.6
	265	284	210	26.7	35.2

¹Includes proprietors and firm members and their salaries; number only reported in 1900 and 1905, but not included in this table.

²Decrease.

The capital increased no less than 35.7 per cent during the five years; wage-earners, 21.1 per cent; wages, 32.4 per cent; cost of materials used, 51.4 per cent; and value of products, 38.5 per cent.

Table 37 indicates that there has been apparently a considerable decrease in the number of spindles and looms. The explanation is a simple one: like other branches of the wool industry some establishments classified as "felt goods" have made certain quantities of woven goods, the amounts of which are indicated in Table 46. Some of the mills of this class have gone out of business or have discontinued the production of woven goods since 1900, and in one case, at least,

a mill which was classified in 1900 as "felt goods" increased so largely its production of satinets and overcoatings that its classification was changed, and its report was classified as woolen goods.

Wool hats.—Table 38 shows the leading facts relating to the wool hat industry from 1890 to 1905.

TABLE 38.—*Wool hats—comparative summary, with per cent of increase: 1890 to 1905.*

	CENSUS.			PER CENT OF INCREASE.	
	1905	1900	1890	1900 to 1905	1890 to 1900
Number of establishments...	17	24	32	129.2	125.0
Capital.....	\$1,646,064	\$2,050,802	\$4,142,224	119.7	150.5
Salaries.....	68	57	292	19.3	138.0
Wage-earners, average number.....	\$94,245	\$66,766	\$113,968	41.2	141.4
Total wages.....	1,503	2,108	3,500	128.7	139.8
Men 16 years and over.....	\$619,194	\$937,855	\$1,249,976	134.0	125.0
Wages.....	1,030	1,358	2,220	124.2	138.8
Women 16 years and over.....	\$487,013	\$727,253	\$980,030	133.0	125.8
Wages.....	433	651	1,121	133.5	141.9
Children under 16 years.....	\$125,957	\$195,995	\$251,661	135.7	122.1
Wages.....	40	99	159	159.6	137.7
Miscellaneous expenses.....	\$6,224	\$14,607	\$18,285	157.4	120.1
Cost of materials used.....	\$293,208	\$185,644	\$249,568	57.9	125.6
Value of products.....	\$1,369,810	\$2,042,202	\$2,802,041	132.9	127.1
	\$2,457,266	\$3,591,940	\$5,329,921	131.6	132.6

¹Decrease.

²Includes proprietors and firm members, with their salaries; number only reported in 1900 and 1905, but not included in this table.

In almost every particular the industry known as wool hats has declined during the last five years. A considerable number of establishments have gone out of business. Capital, the number of wage-earners, the amount of wages, the cost of materials, and the value of products all show a decline, which is, of course, wholly due to the small and decreasing demand for the product of these establishments.

FELT HATS.

At previous censuses the designation "fur hats" has been employed to denote this industry on account of the chief material entering into its products. But the term "felt hats" is so universal, both in popular use and in the trade, that it seemed advisable to adopt it.

A full account was given in the report at the Twelfth Census of the process of manufacturing such hats, and it is unnecessary at present to do more than to summarize the condition of the industry as disclosed at the census of 1905, and to note the progress made in the intervening period of five years.

Table 39 presents a summary of the leading statistics of the industry in 1900 and 1905:

TABLE 39.—*Felt hats—comparative summary: 1905 and 1900.*

	CENSUS.		Per cent of increase.
	1905	1900	
Number of establishments.....	216	171	26.3
Capital.....	\$23,258,104	\$16,701,308	39.3
Salaries.....	1,367	726	88.3
Wage-earners, average number.....	\$1,488,236	\$943,998	57.7
Total wages.....	22,047	18,880	16.8
Men 16 years and over.....	\$11,282,237	\$9,119,264	23.7
Wages.....	15,432	13,187	17.0
Women 16 years and over.....	\$9,166,347	\$7,231,777	26.8
Wages.....	6,166	5,436	13.4
Children under 16 years.....	\$2,035,685	\$1,840,454	10.6
Wages.....	449	257	74.7
Miscellaneous expenses.....	\$80,205	\$47,033	70.5
Cost of materials used.....	\$2,431,197	\$1,416,737	99.8
Value of products.....	\$15,975,206	\$13,513,663	18.2
	\$36,629,353	\$27,811,187	31.7

Contrary to the situation in many other important classes of manufacture the number of establishments shows a considerable increase, the number now reporting being 216, as against 171 in 1900. New Jersey, Connecticut, Pennsylvania, and New York contain now, as then, the largest number of establishments. All but 19 of the 171 establishments reported in 1900 were in these 4 states; all but 29 of those reporting in 1905, out of 216, were in the same states. The number in New York has been almost trebled—from 15 to 43.

The capital employed shows the large increase of 39.3 per cent in five years—from a gross amount of \$16,701,308 in 1900 to \$23,258,104 in 1905. The increase is much the largest in Pennsylvania—from \$5,726,529 in 1900 to \$8,777,678 in 1905, or 53.3 per cent; but it exceeds 45 per cent in both New Jersey and New York. The increase was unimportant in Connecticut and in Massachusetts, which latter state ranks fifth among the states in the importance of this industry.

The average number of wage-earners has not increased at so rapid a rate as the capital employed, but although there was only a moderate increase in each of the states reporting, Pennsylvania exhibits an increase of no less than 60 per cent—from 2,890 to 4,619. In

the amount of wages there has been an increase of 23.7 per cent, indicating a higher average rate, although as in all such cases a variety of circumstances other than numbers and amount must be taken into consideration. Notwithstanding the varying rates of increase in the several states the order of the 4 leading states in the amount of wages is the same as at the census of 1900: New Jersey, Connecticut, New York, and Pennsylvania. It will be observed that this industry is essentially one in which men are employed. In 1900 and also in 1905 the proportion of men to the whole number of wage-earners was almost exactly 70 per cent, and of women, 28 per cent. The slight fractional decrease in each case is accounted for by the increase of the proportion of children from 1.4 to 2 per cent. Almost the entire increase in the number of children, it may be noted, took place in Pennsylvania.

The cost of materials used shows an increase of 18.2 per cent; the value of products increased from \$27,811,187 to \$36,629,353, or at the rate of 31.7 per cent—a remarkable increase for so short a period. In quantity wool hats manufactured in felt hat factories increased from 180 dozens in 1900 to 18,179 dozens in 1905; and felt hats from 1,882,372 dozens in 1900 to 2,611,875 dozens in 1905, or 38.7 per cent.

SHODDY.

There is, perhaps, no article produced in manufacture, no article used in manufacture, and no article in common use, that bears a reputation more undeserved than does shoddy. Its very name is a synonym for pretense and fraud. To the popular mind goods containing shoddy are not merely destitute of wearing quality, but are suggestive of the unwholesome second-hand clothing shop, and inspire one with apprehension lest the fabric should communicate loathsome disease to the wearer of apparel in which there is this substance of ill repute. All this is unwarranted by the facts, as all are aware who understand the shoddy process, the method of making use of shoddy, and the benefits which the use of it confers upon the user. It is not the case, as is too commonly supposed, that a garment—or the cloth which is made into a garment—is or can be composed wholly of shoddy. New wool or animal hair is always the basis of the yarn and a certain amount of shoddy is mixed with it on the card. The fiber is too short to be carded and spun alone. Then, too, the process of making shoddy is one which insures absolute cleanness and the destruction of all active germs, whether innocuous or pathogenic. And when the combination with wool has been completed the cloth into which the yarn is woven, although not so durable as the cloth made from new wool, is by no means so lacking in wearing quality as is commonly supposed, but is quite as warm and quite as comfort-

able as if it were made wholly of wool never before used, and the price at which garments containing shoddy can be produced make them a boon to the poor people who could not afford to buy clothing made of new wool.

There are several products of the shoddy industry which are classified according to the length of the fiber after the materials—wool waste and noils, tailors' clippings, rags, etc.—have been passed through the picker and the garnet machine. They are—and their relative value may be seen from the reported average value per pound as disclosed in the census statistics—shoddy and mungo, valued at 12.6 cents per pound; wool extract, 11.4 cents per pound; and flocks, 4.8 cents per pound. Flocks are practically wool dust, which is used largely in giving a surface to waterproof goods.

The industry is a growing one. It has increased apparently at a more rapid rate during the past five years than the wool industry proper. It may be that the rate of growth has not been so great as appears from the returns, inasmuch as the reports in 1900 were defective to a certain extent, and the estimates necessary to present the whole industry may have been beneath the truth. Table 40 gives a comparative statement of the leading facts relating to the industry, so far as ascertained, at each census period since 1860, with the rate of increase.

MANUFACTURES.

TABLE 40.—SHODDY—COMPARATIVE SUMMARY, WITH PER CENT OF INCREASE: 1860 TO 1905.

	CENSUS.						PER CENT OF INCREASE.				
	1905	1900	1890	1880	1870	1860	1900 to 1905	1890 to 1900	1880 to 1890	1870 to 1880	1860 to 1870
Number of establishments.....	97	105	94	73	56	30	17.6	11.7	28.8	30.4	86.7
Capital.....	\$5,804,164	\$5,272,929	\$3,754,063	\$1,165,100	\$815,950	\$123,500	10.1	40.5	222.2	42.8	560.7
Salaries of officials, clerks, etc., number.....	172	139	144	(³)	(³)	(³)	23.7	13.5	.....	.....	.....
Salaries.....	\$245,403	\$166,704	\$149,483	(³)	(³)	(³)	47.2	11.5	.....	.....	.....
Wage-earners, average number.....	2,089	1,926	2,155	1,282	632	290	8.5	10.6	68.1	102.8	117.9
Total wages.....	\$834,822	\$748,948	\$707,099	\$400,326	\$198,372	\$54,124	11.5	5.9	76.6	101.8	266.5
Men 16 years and over.....	1,625	1,425	1,252	695	419	141	14.0	13.8	80.1	65.9	197.2
Wages.....	\$723,540	\$620,444	\$534,250	(³)	(³)	(³)	16.6	16.1	.....	.....	.....
Women 16 years and over.....	458	480	865	496	171	149	14.6	144.5	74.4	190.1	14.8
Wages.....	\$110,242	\$124,004	\$168,549	(³)	(³)	(³)	11.1	126.4	.....	.....	.....
Children under 16 years.....	6	21	38	91	42	.....	171.4	144.7	158.2	116.7	.....
Wages.....	\$1,040	\$4,500	\$4,300	(³)	(³)	(³)	176.9	4.7	.....	.....	.....
Miscellaneous expenses.....	\$461,527	\$293,149	\$238,094	(⁴)	(⁴)	(⁴)	57.4	23.1	.....	.....	.....
Cost of materials used.....	\$6,055,731	\$4,875,192	\$6,003,035	\$3,366,650	\$1,098,603	\$227,925	24.2	118.8	78.3	266.4	382.0
Value of products.....	\$8,406,425	\$6,730,974	\$7,887,000	\$4,989,615	\$1,768,592	\$402,590	24.9	114.7	58.1	182.1	339.3

¹ Decrease.² Includes proprietors and firm members, with their salaries; number only reported in 1900 and 1905, but not included in this table.³ Not reported separately.⁴ Not reported.

The number of establishments is smaller than in 1900, but the capital and most of the other items in the foregoing summary show an increase, the only exceptions being the number of women and children and their wages; the difference, however, is more than made up by the larger number of men. The rates of increase of the important items are: Capital, 10.1 per cent; wage-earners, 8.5 per cent; wages, 11.5 per cent; cost of materials, 24.2 per cent; value of products, 24.9 per cent.

The location of shoddy mills is dictated, to a certain extent, by the proximity to the source of supply of the material, but chiefly by the nearness to the market—that is, to the woolen mills that use their product. Of the 97 establishments now reported, 31 are in Massachusetts, 23 in Pennsylvania, 11 in New York, 6 in Connecticut, and 4 in New Jersey—75 in these 5 states, which are 5 of the 6 leading states in the woolen manu-

facture. The same 5 states which thus had 77.3 per cent of the number of establishments report 68.8 per cent of the capital employed, 72.4 per cent of the cost of materials, and 72 per cent of the value of products. Of the machinery, they had 78.5 per cent of the total number of cards, 77.3 per cent of the pickers, and 86.2 per cent of the garnet machines. The 22 establishments in other states than the 5 mentioned above were located as follows: In Ohio, 5; in Rhode Island, 4; in Vermont, 3; in Maine, 2; in California, 2; and 1 each in New Hampshire, Michigan, Illinois, Wisconsin, Georgia, and Tennessee. The number of establishments in the 5 leading states is the same as in 1900, and the decrease has been in the states where there is little or no manufacture of woolen goods.

Table 41 shows the raw material of the shoddy industry and the usable product of the mills.

TABLE 41.—SHODDY—PRINCIPAL MATERIALS AND PRODUCTS: 1905.

	MATERIALS.			PRODUCTS.	
	Pounds.	Cost.		Pounds.	Value.
Total.....	78,433,085	\$5,365,305	Total.....	63,789,807	\$7,704,915
Wool, foreign and domestic.....	597,492	127,927	Shoddy and mungo.....	54,401,295	6,831,689
Animal hair.....	505,000	14,154	Wool extract.....	6,375,768	727,912
Cotton.....	44,400	3,331	Flocks.....	2,968,203	143,536
Shoddy.....	187,100	12,385	Yarn and waste.....	44,541	1,778
Wool and other waste and noils and tops.....	8,177,996	909,807			
Tailors' clippings and rags.....	68,921,097	4,295,641			

Notwithstanding the economy of the process and the use of all available materials but little more than four-fifths of the material purchased, in weight, becomes salable product.

In order to show the full amount of shoddy and

mungo available for use in the census year the following tabular statement includes the production for sale and the production in mills for their own consumption. Wool extract and flocks, which can not be used for spinning with wool, are not included:

Total production of shoddy and mungo: 1905.

	Pounds.
Total.....	127,897,263
Made for sale by shoddy mills.....	54,401,295
Made for sale by wool manufacturers.....	1,733,974
Made for use in mill by wool manufacturers.....	70,801,994
Made for sale by other than textile mills.....	960,000

It may be mentioned that the whole of the shoddy used in the country is of domestic production. The amount of imported shoddy entered for consumption in the year ending June 30, 1905, was 50 pounds, and of mungo, 50 pounds.

Table 42 presents a comparative summary, by states, of the general facts of the shoddy industry from 1880 to 1905.

TABLE 42.—SHODDY—COMPARATIVE SUMMARY, BY STATES: 1880 TO 1905.

STATE.	Census.	Number of establishments.	Capital.	SALARIED OFFICIALS, CLERKS, ETC.		WAGE-EARNERS AND WAGES.								Miscellaneous expenses.	Cost of materials used.	Value of products.
						Total.		Men 16 years and over.		Women 16 years and over.		Children under 16 years.				
				Number.	Salaries.	Average number.	Wages.	Average number.	Wages.	Average number.	Wages.	Average number.	Wages.			
United States.	1905	97	\$5,804,164	172	\$245,403	2,089	\$834,822	1,625	\$723,540	458	\$110,242	5	\$1,040	\$461,527	\$6,055,731	\$8,406,425
	1900	105	5,272,929	139	166,704	1,926	748,948	1,425	620,444	480	124,004	21	4,500	293,149	4,875,192	6,730,974
	1890	94	3,754,063	144	149,483	2,155	707,099	1,252	534,250	865	168,549	38	4,300	238,094	6,063,035	7,887,000
	1880	73	1,165,100	(2)	(2)	1,282	400,326	695	(2)	496	(2)	91	(2)	(2)	3,366,650	4,989,615
California ¹	1900	3	10,225				3,940	8	3,940					586	9,156	17,678
Connecticut.....	1905	6	517,159	14	16,324	124	55,157	117	53,021	7	2,136			26,753	362,497	468,445
	1900	7	494,074	8	8,191	118	44,163	101	40,461	7	1,402	10	2,300	33,601	362,438	537,733
	1890	7	395,336	14	13,271	166	72,545	142	66,185	16	4,600	8	1,760	26,099	442,852	648,060
	1880	8	86,000			139	35,345	93		38		8			261,200	347,500
Illinois ²	1890	3	110,037	4	6,500	110	29,754	37	19,228	73	10,526			11,610	103,722	182,110
	1880	2	22,000			31	12,300	16		12		3			74,500	100,000
Massachusetts.....	1905	31	1,206,351	47	68,875	144	189,608	379	173,457	62	15,683	11	468	123,506	1,249,985	1,814,944
	1900	29	769,294	30	34,006	307	127,715	260	114,492	44	12,794	3	429	50,027	685,123	988,189
	1890	29	902,850	29	28,135	406	152,613	300	121,984	106	30,629			62,687	1,170,868	1,614,459
	1880	30	460,500			471	173,439	334		105		32			1,308,715	2,305,985
New Hampshire ³	1890	3	23,000	1	1,033	24	16,650	24	10,650					1,795	86,816	111,848
	1880	3	17,300			23	5,700	13		8		2			38,900	49,600
New Jersey.....	1905	4	541,103	16	26,600	223	87,134	183	76,988	40	10,146			38,043	563,386	866,268
	1900	4	538,936	15	30,100	156	56,027	128	49,445	28	6,582			25,798	526,492	685,043
	1890	4	193,225	10	8,150	117	35,605	64	26,480	49	8,225	4	900	20,150	301,113	389,640
	1880	1	35,000			30	25,000	10		5		15			80,734	137,500
New York.....	1905	11	514,149	18	20,908	185	79,558	166	72,195	29	7,363			47,607	496,690	701,954
	1900	9	329,861	7	6,130	167	65,739	137	58,695	28	6,781	2	263	18,122	310,783	443,529
	1890	12	482,520	19	17,300	173	60,061	140	54,654	27	4,767	6	640	11,640	343,012	471,478
	1880	7	32,700			78	33,610	43		32		3			321,220	407,590
Ohio.....	1905	5	922,447	21	37,088	426	158,352	268	121,479	158	36,873			90,124	948,155	1,239,267
	1900	6	1,397,746	35	55,225	474	164,579	229	102,736	245	61,543			69,259	1,077,529	1,478,712
	1890	3	744,530	12	20,100	684	162,600	179	80,260	485	51,540	20	1,000	28,266	1,100,480	1,377,500
	1880	1	250,000			246	40,000	30		216					575,090	700,000
Pennsylvania.....	1905	23	1,216,336	34	42,792	360	142,188	274	120,772	83	20,844	3	572	74,880	1,713,379	2,204,279
	1900	26	972,070	34	24,746	368	148,240	285	126,604	80	21,064	3	572	57,728	1,069,944	1,448,886
	1890	18	640,382	37	34,716	302	116,459	211	92,183	91	24,276			50,305	1,205,258	1,633,770
	1880	11	186,000			143	47,441	90		40		13			510,977	655,895
Rhode Island.....	1905	4	67,056			43	19,752	42	19,544	1	208			9,155	60,097	113,433
	1900	9	228,930	3	3,400	131	56,397	127	55,096	4	1,301			23,828	399,126	515,643
	1890	10	194,250	14	16,498	132	51,516	129	50,580	3	936			22,278	1,165,235	1,350,792
	1880	6	49,600			83	18,590	51		26		6			137,054	195,045
Vermont ⁴	1905	3	435,384	9	9,576	123	49,146	86	38,722	37	10,424			32,445	463,567	639,865
	1900	3	245,982	1	1,000	93	45,345	67	38,142	26	7,203			7,609	268,712	382,852
	1880	2	15,000			15	3,896	6		9					37,000	56,000
All other states.....	1905	10	384,179	13	23,240	151	53,927	110	47,362	41	6,565			19,014	197,975	357,970
	1900	8	285,811	6	3,576	104	36,803	83	30,833	18	5,034	3	936	6,591	165,889	232,704
	1890	5	67,933	4	3,780	41	15,296	26	12,046	15	3,250			3,264	83,679	107,343
	1880	2	11,000			23	5,005	9		5		9			21,350	34,500

¹ Includes proprietors and firm members, with their salaries; number only reported in 1900 and 1905, but not included in this table.

² Not reported separately.

³ Not reported.

⁴ Included in "all other states" in 1905 and 1890. No establishments reported in 1880.

⁵ Included in "all other states" in 1905 and 1900.

⁶ Included in "all other states" in 1890.

⁷ Includes establishments distributed as follows: California, 2; Georgia, 1; Illinois, 1; Maine, 2; Michigan, 1; New Hampshire, 1; Tennessee, 1; Wisconsin, 1.

⁸ Includes establishments distributed as follows: Georgia, 1; Illinois, 2; Indiana, 1; Maine, 2; New Hampshire, 2; Wisconsin, 1.

⁹ Includes establishments distributed as follows: California, 1; Maine, 2; Vermont, 1; Wisconsin, 1.

¹⁰ Includes establishments distributed as follows: Maine, 1; Maryland, 1.

WOOL SCOURING AND WOOL PULLING.

Among the minor industries tributary to the establishments in which wool is the chief raw material, the most important are wool scouring and wool pulling by independent establishments. By far the largest part of the scouring—a process to which all wool must be subjected before it can be used—is done in the mills which manufacture; and much less than one-half of the wool pulled from sheepskins is obtained by the concerns which make pulling wool their chief business. Inasmuch as all the wool used is scoured it is a matter of no importance, whatever to learn what was the amount operated upon in the independent establishments reported. However, the Bureau of the Census estimates the amount treated at the census of 1905 at 81,495,099 pounds besides 769,500 pounds reported as scoured in a tanning and currying establishment, which is less than one-sixth of the wool reported as used in all the textile industries at the census of 1905. The general facts relating to the business of wool scouring in the establishments reported at the censuses of 1900 and 1905 are given in Table 43.

TABLE 43.—*Wool scouring—comparative summary, with per cent of increase: 1905 and 1900.*

	CENSUS.		Per cent of increase.
	1905	1900	
Number of establishments.....	27	25	8.0
Capital.....	\$1,187,716	\$1,061,123	11.9
Salaried officials, clerks, etc., number.....	55	45	22.2
Salaries.....	\$77,694	\$72,011	7.9
Wage-earners, average number.....	779	720	8.2
Total wages.....	\$397,811	\$338,606	17.5
Men 16 years and over.....	702	646	8.7
Wages.....	\$375,578	\$316,924	18.5
Women 16 years and over.....	67	74	19.5
Wages.....	\$19,610	\$21,682	19.6
Children under 16 years.....	10	.....	.....
Wages.....	\$2,623	.....	.....
Miscellaneous expenses.....	\$149,155	\$102,039	46.2
Cost of materials used.....	\$214,624	\$193,826	10.7
Amount received for work done.....	\$1,052,909	\$889,809	18.3

¹ Decrease.

All of the items in Table 43 show an increase, except the number of women employed and their wages. The changes are, however, quite unimportant. The practice of locating scouring mills in regions of wool production, as well as in the neighborhood of spinning mills, is illustrated by the addition of 1 mill each in Colorado, Arkansas, Minnesota, and Oregon; but 2 less are reported from California and 1 less from New Mexico than in 1900.

It should be said in explanation of two of the items in Table 43 that the cost of materials used does not include the value of the wool operated upon. It would have been impossible to obtain the facts necessary for an accurate statement of that amount, since some of the establishments scoured wool for the owners of the wool and had no knowledge of its cost, whereas others bought the wool and sold it after scouring. For the same reason the "amount received for work done," which is substituted for the usual "value of products," represents the aggregate of receipts for work done for

others and of profit on wool scoured on their own account.

The comparative summary for wool pulling is presented in Table 44.

TABLE 44.—*Wool pulling—comparative summary, with per cent of increase: 1905 and 1900.*

	CENSUS.		Per cent of increase.
	1905	1900	
Number of establishments.....	34	34	.....
Capital.....	\$2,534,029	\$944,715	168.2
Salaried officials, clerks, etc., number.....	65	35	85.7
Salaries.....	\$74,415	\$35,422	110.1
Wage-earners, average number.....	681	475	43.4
Total wages.....	\$364,754	\$247,950	47.1
Men 16 years and over.....	680	475	43.2
Wages.....	\$364,394	\$247,950	47.0
Children under 16 years.....	1	.....	.....
Wages.....	\$360	.....	.....
Miscellaneous expenses.....	\$128,396	\$47,395	170.9
Cost of materials used.....	\$103,984	\$53,975	92.7
Amount received for work done.....	\$881,706	\$531,287	66.0

It will be observed that the capital, miscellaneous expenses, and one or two other items in Table 44 exhibit a much larger increase than is suggested by the increase in the amount of business. The apparent discrepancy is without special significance, inasmuch as it arises from the inability of some large concerns engaged in more than one industry to make an accurate division between them.

The estimate by the Bureau of the Census of the amount of wool pulled at the census of 1905 by the 34 establishments whose business is summarized in the table is 16,707,943 pounds, to which should be added 9,201,196 pounds reported as pulled under contract by tanning and slaughtering establishments, and 16,377,333 pounds of wool reported as a by-product by slaughtering and meat packing establishments—a total of 42,286,472 pounds. The estimate of the secretary of the National Association of Wool Manufacturers, made independently and without the benefit of the census returns, was 42,000,000 pounds. The close correspondence of the two estimates tends strongly to confirm the accuracy of both.

Tables 45 to 55, inclusive, which follow, are comparative and detailed summaries for the several industries embraced in this report.

Table 45 is a comparative summary for combined wool manufactures, by states and geographic divisions, from 1840 to 1905.

Table 46 presents detailed statistics for the combined wool industry and for each industry, 1905.

Tables 47 to 51 show the complete statistics for each of the 5 industries of the wool industry—worsted goods, woollen goods, carpets and rugs, felt goods, and wool hats—by states, 1905.

Table 52 is a summary of the felt hat industry, by states, 1905.

Table 53 is a summary of the shoddy industry, by states, 1905.

Tables 54 and 55 are summaries of the wool scouring and wool pulling industries, by states, 1905.

MANUFACTURES.

TABLE 45.—WOOL MANUFACTURES—COMPARATIVE SUMMARY,

STATE.	Cen- sus.	Num- ber of estab- lish- ments. ¹	Capital.	SALARIED OFFICIALS, CLERKS, ETC.		WAGE-EARNERS AND WAGES.				
				Number.	Salaries.	Total.		Average number.		
						Average number.	Wages.	Men 16 years and over.	Women 16 years and over.	Children under 16 years.
United States.....	1905	1,213	\$370,861,691	5,616	\$8,177,345	179,976	\$70,797,524	94,841	72,222	12,913
	1900	1,414	310,179,749	4,495	6,455,495	159,108	57,933,817	83,371	64,141	11,596
	1890	1,693	245,886,743	² 3,652	² 4,057,695	154,271	54,339,775	78,550	64,944	10,777
	1880	2,330	143,512,278	(³)	(³)	132,672	40,687,612	67,942	49,107	15,623
	1870	3,208	121,451,059	(³)	(³)	105,071	35,928,150	53,400	39,150	12,521
	⁴ 1860	1,476	38,814,422	(³)	(³)	50,419	11,699,630	29,852	20,567	(³)
	⁵ 1850	1,675	31,971,631	(³)	(³)	45,438	(⁷)	26,559	18,879	(³)
	1840	1,420	15,765,124	(³)	(⁴)	21,342	(⁴)	21,342	(³)	(³)
New England states.....	1905	482	215,695,277	2,536	3,984,806	98,263	40,549,544	55,704	36,929	5,630
	1900	488	177,844,108	2,086	3,350,088	82,472	31,230,772	46,540	31,424	4,508
	1890	518	134,627,725	1,316	1,837,649	77,747	28,190,048	42,323	31,138	4,286
	1880	564	75,522,666			67,582	21,360,036	34,939	25,712	6,931
	1870	675	63,856,145			54,851	19,588,984	26,462	22,605	5,784
	1860	420	24,700,353			30,130	7,032,555	16,993	13,137	
	1850	482	17,667,892			22,520		11,980	10,540	
	1840	489	9,259,935			11,268		11,268		
Maine.....	1905	74	17,960,418	293	405,728	8,937	3,599,570	5,614	3,009	314
	1900	81	14,512,120	225	281,761	7,324	2,762,564	4,699	2,425	260
	1890	78	9,456,830	126	136,841	5,067	1,824,670	3,162	1,755	150
	1880	96	4,016,328			3,244	1,000,528	1,810	1,140	24
	1870	108	4,187,745			3,104	1,065,151	1,592	1,287	225
	1860	28	940,400			1,064	273,596	565	499	
	1850	36	467,600			624		310	314	
	1840	24	316,105			532		532		
New Hampshire.....	1905	44	14,411,232	207	257,372	6,581	2,755,062	3,743	2,655	183
	1900	45	11,280,295	131	166,074	5,461	2,045,316	3,130	2,201	130
	1890	52	12,015,721	120	161,908	6,102	2,190,657	3,160	2,758	144
	1880	61	7,150,855			5,599	1,701,619	2,811	2,284	504
	1870	82	5,626,100			5,081	1,788,894	2,259	2,328	494
	1860	54	2,647,300			2,655	687,746	1,291	1,364	
	1850	61	2,437,700			2,127		926	1,201	
	1840	66	740,345			893		893		
Vermont.....	1905	17	5,653,649	98	152,600	2,235	922,825	1,565	624	46
	1900	24	3,202,151	57	78,525	1,557	603,963	1,000	470	27
	1890	29	3,364,332	44	42,475	1,541	582,965	1,003	601	37
	1880	44	2,300,161			2,084	544,138	1,171	783	130
	1870	66	2,330,100			1,895	649,628	935	759	201
	1860	46	1,746,300			2,073	214,572	885	1,178	
	1850	72	886,300			1,303		683	710	
	1840	95	1,406,950			1,450		1,450		
Massachusetts.....	1905	202	112,437,126	1,176	1,920,568	49,576	20,475,903	27,741	19,027	2,808
	1900	195	101,288,754	1,048	1,710,094	42,069	16,057,849	23,363	16,420	2,286
	1890	219	66,568,586	624	926,458	37,739	13,732,316	20,636	15,391	1,712
	1880	214	36,764,000			34,717	11,027,822	17,588	14,060	3,069
	1870	226	26,722,900			28,025	9,809,718	13,228	11,961	2,836
	1860	147	15,005,853			15,638	3,658,589	8,964	6,674	
	1850	119	9,089,342			11,130		6,167	4,963	
	1840	144	4,179,850			5,076		5,076		
Rhode Island.....	1905	82	45,599,808	436	654,412	21,610	9,102,479	11,090	8,624	1,806
	1900	78	41,307,942	407	750,404	17,854	6,721,040	9,141	7,230	1,433
	1890	69	24,310,743	246	333,073	17,541	6,228,686	8,703	7,111	1,727
	1880	61	13,016,116			12,125	3,703,257	5,871	4,387	1,867
	1870	76	10,467,500			7,894	2,862,492	3,644	3,184	1,066
	1860	58	3,169,000			4,232	1,069,728	2,594	1,638	
	1850	45	1,013,000			1,758		987	771	
	1840	41	685,350			961		961		
Connecticut.....	1905	63	19,627,044	386	594,226	9,324	3,693,705	5,951	2,990	383
	1900	65	17,412,846	218	303,140	8,207	3,040,040	5,147	2,678	382
	1890	71	18,971,463	156	236,894	9,757	3,630,754	5,759	3,522	476
	1880	88	12,255,206			9,813	3,322,672	5,688	3,058	1,067
	1870	117	14,531,000			8,852	3,413,101	4,804	3,086	962
	1860	87	3,191,500			4,468	1,128,324	2,684	1,784	
	1850	149	3,773,950			5,488		2,907	2,581	
	1840	119	1,931,335			2,356		2,356		
Middle states ⁶	1905	462	130,841,453	2,304	3,407,725	69,104	26,346,593	33,383	29,627	6,004
	1900	502	110,361,026	1,747	2,361,313	64,973	23,567,092	31,558	27,456	5,959
	1890	652	86,140,259	1,412	1,527,627	62,345	22,401,695	29,582	27,416	5,347
	1880	794	53,834,368			54,138	16,682,073	26,797	20,144	7,197
	1870	659	37,194,990			36,322	12,619,089	18,182	13,028	5,112
	1860	717	10,472,728			16,121	3,717,095	9,928	6,193	
	1850	717	8,351,908			13,802		8,549	5,253	
	1840	620	5,519,175			8,464		8,464		
New York.....	1905	79	40,346,945	688	995,913	20,019	8,087,456	10,325	9,055	639
	1900	100	32,098,305	507	864,861	18,027	6,610,259	8,553	8,330	1,144
	1890	138	26,853,583	357	462,904	17,336	6,133,609	7,814	8,213	1,309
	1880	189	18,248,698			16,428	5,189,180	7,405	6,931	2,092
	1870	272	14,451,232			12,487	4,315,710	6,199	4,583	1,705
	1860	168	4,133,568			6,123	1,351,955	3,475	2,648	
	1850	249	4,459,370			6,674		4,262	2,412	
	1840	323	3,469,349			4,636		4,636		

¹ The number of establishments affords no clew to the growth or condition of the industry of wool manufacturing. This is due to the fact that at all censuses, except those of 1905 and 1860, the custom carding mill has been counted as a wool factory, although it is not, in the modern use of the term, a factory, and should not, therefore, be included with the statistics of factory manufacture.

² Includes proprietors and firm members, with their salaries; number only reported in 1900 and 1905, but not included in this table.

³ Not reported separately.

⁴ Not reported.

BY STATES AND GEOGRAPHIC DIVISIONS: 1840 TO 1905.

MACHINERY.				Miscellaneous expenses.	Cost of materials used.	PRINCIPAL MATERIALS—QUANTITIES CONSUMED.							Value of products.					
Woolen cards.	Combing machines.	Looms.	Spindles.			Wool in condition purchased.			Raw cotton and cotton yarn, purchased (pounds).	Animal hair and fur and noils, purchased (pounds).	Shoddy, purchased (pounds).							
						Total (pounds).	Foreign (pounds).	Domestic (pounds).										
5,968	1,549	77,985	4,021,098	\$21,588,465	\$242,561,096	483,526,095	152,562,532	330,963,563	97,022,757	44,567,579	35,782,056	\$380,934,003	1					
6,605	1,451	74,190	3,511,099	17,329,932	181,159,127	394,309,523	136,434,961	257,874,562	98,632,496	35,111,063	34,496,508	296,990,484	2					
7,015	839	69,658	2,793,147	15,622,263	167,233,987	351,158,020	111,382,308	239,775,712	94,372,267	26,262,316	56,826,475	270,527,511	3					
1,83	515	57,297	2,111,973	()	149,160,600	287,597,334	72,751,940	214,845,394	63,830,664	8,011,037	50,640,663	238,085,686	4					
8,706	261	45,737	2,046,113	()	124,318,792	214,373,219	46,288,805	168,084,414	26,420,626	()	19,384,404	199,257,262	5					
1,119	()	16,075	639,700	()	43,447,048	95,452,159	()	()	17,248,061	()	()	73,454,000	6					
()	()	()	()	()	28,811,583	70,862,829	()	()	()	()	()	48,608,779	7					
()	()	()	()	()	()	()	()	()	()	()	()	20,686,999	8					
2,407	875	42,839	2,312,554	10,122,344	141,412,768	263,088,638	71,683,644	191,404,994	43,629,067	9,610,131	21,905,793	218,108,733	9					
2,427	821	40,238	2,071,546	8,475,253	99,783,297	224,826,710	62,874,851	161,951,859	39,155,944	8,530,697	24,485,828	161,566,277	10					
7,702	519	33,348	1,570,097	9,143,764	80,887,689	195,867,736	58,429,837	137,437,929	30,851,876	9,366,220	35,721,895	139,302,134	11					
3,996	302	30,692	1,246,100	()	80,152,160	163,763,773	43,475,554	120,288,219	20,775,273	2,441,485	28,653,694	10,014,752	12					
1,471	225	21,865	1,206,717	()	68,819,733	123,791,815	30,295,579	93,436,230	11,479,564	()	10,917,494	108,295,425	13					
1,774	()	8,920	393,333	()	29,570,028	67,702,407	()	()	11,883,078	()	()	47,722,814	14					
()	()	()	()	()	16,055,233	43,118,059	()	()	()	()	()	26,077,812	15					
()	()	()	()	()	()	()	()	()	()	()	()	12,959,486	16					
455	26	3,689	210,992	1,242,578	11,065,867	15,927,971	2,817,947	13,110,024	5,155,939	2,143,036	4,114,911	17,972,569	17					
437	19	2,802	181,621	860,447	8,142,820	20,240,598	3,154,524	17,085,074	3,287,412	2,380,861	5,094,185	13,744,126	18					
387	5	2,020	120,418	593,305	5,675,347	13,782,749	1,744,381	12,038,368	2,639,802	1,356,818	1,515,035	8,737,653	19					
274	()	1,103	68,192	()	4,443,190	9,074,011	1,085,606	7,988,405	1,570,462	402,707	1,302,789	6,959,003	20					
335	()	1,161	66,049	()	4,014,759	7,721,228	282,727	7,338,501	769,363	()	()	6,483,881	21					
80	()	185	11,765	()	1,035,876	2,454,300	()	()	82,500	()	()	1,759,007	22					
()	()	()	()	()	495,940	1,438,434	()	()	()	()	()	753,300	23					
()	()	()	()	()	()	()	()	()	()	()	()	412,366	24					
376	24	4,397	234,974	796,953	9,478,898	18,608,958	4,610,445	13,998,513	3,035,302	16,867	1,669,842	14,284,480	25					
335	34	5,312	146,292	455,398	6,636,567	16,218,609	1,581,498	14,637,111	6,760,375	179,382	4,181,362	10,381,056	26					
380	29	4,049	136,648	617,052	7,024,461	18,696,016	4,854,212	13,841,804	4,708,465	150,056	3,424,970	10,963,250	27					
317	21	2,884	138,223	()	6,005,355	15,172,837	2,379,575	12,793,262	2,871,944	50,362	3,115,890	10,858,071	28					
360	12	1,695	125,079	()	6,539,028	11,832,666	1,968,869	9,863,797	1,670,994	()	1,380,000	10,513,226	29					
204	()	()	36,320	()	2,775,026	5,305,106	()	()	861,000	()	()	4,358,713	30					
()	()	()	()	()	1,267,329	3,004,103	()	()	()	()	()	2,127,745	31					
()	()	()	()	()	()	()	()	()	()	()	()	759,784	32					
119	()	965	51,218	188,379	2,794,111	3,264,133	97,706	3,166,427	1,464,935	115,927	991,608	4,698,405	33					
124	()	775	39,208	131,575	1,732,372	3,170,502	341,902	2,828,600	570,799	90,058	822,069	2,822,646	34					
120	()	682	41,839	()	1,435,163	3,940,070	1,279,250	2,660,820	653,601	8,550	1,562,221	2,723,683	35					
145	()	746	46,264	()	2,012,490	3,604,191	161,404	3,441,787	640,470	7,598	2,286,150	3,217,807	36					
177	()	670	49,255	()	1,955,972	4,611,347	1,120,680	3,490,667	77,800	()	225,967	3,644,459	37					
99	()	463	23,371	()	1,662,650	4,047,010	()	()	279,500	()	()	2,938,626	38					
()	()	()	()	()	830,684	2,328,100	()	()	()	()	()	1,579,161	39					
()	()	()	()	()	()	()	()	()	()	()	()	1,331,953	40					
1,626	497	21,955	1,118,549	4,456,859	69,790,930	140,314,646	47,791,820	92,522,826	22,613,571	5,121,415	8,398,940	109,612,579	41					
1,594	424	19,746	952,854	4,019,232	49,120,181	118,682,087	42,886,492	76,095,595	17,382,663	3,767,134	9,808,403	81,041,637	42					
1,785	265	16,349	739,952	4,584,917	42,273,379	97,757,379	34,930,000	62,827,349	15,160,584	6,770,990	21,608,371	67,599,321	43					
1,622	190	15,863	588,941	()	40,285,171	84,929,798	28,011,595	56,918,203	13,704,566	1,751,208	13,017,085	64,938,209	44					
1,433	172	11,662	567,611	()	33,795,994	63,499,752	20,189,746	43,310,006	5,653,557	()	5,994,110	52,270,608	45					
873	()	4,237	159,651	()	15,367,475	39,731,072	()	()	5,871,370	()	()	24,053,443	46					
()	()	()	()	()	8,671,671	22,229,952	()	()	()	()	()	12,770,565	47					
()	()	()	()	()	()	()	()	()	()	()	()	7,082,898	48					
344	211	5,103	489,340	2,463,803	35,936,222	66,069,085	9,233,080	56,778,005	7,444,232	384,190	4,273,269	52,640,763	49					
478	287	8,007	529,219	2,153,422	25,087,370	51,727,830	10,710,322	41,017,508	7,709,524	1,147,471	7,877,940	39,042,660	50					
558	193	6,104	340,326	1,838,032	19,976,086	39,973,992	8,929,242	31,044,750	4,095,989	317,184	2,168,503	32,205,829	51					
495	70	6,957	228,262	()	13,079,812	27,141,974	4,469,088	22,672,886	4,783,284	166,893	2,027,782	21,588,204	52					
484	7	3,333	215,973	()	9,826,158	14,421,967	772,247	13,649,720	1,637,139	()	919,000	15,394,067	53					
253	()	1,596	86,048	()	4,071,464	6,835,100	()	()	3,050,200	()	()	6,917,705	54					
()	()	()	()	()	1,463,900	4,103,370	()	()	()	()	()	2,381,825	55					
()	()	()	()	()	()	()	()	()	()	()	()	842,172	56					
487	37	3,760	207,481	973,772	12,346,730	18,903,845	7,072,646	11,831,199	3,915,088	1,828,696	2,457,223	18,899,937	57					
459	57	3,596	222,352	855,179	9,063,987	14,787,114	4,590,113	10,287,001	3,425,771	1,065,811	4,475,922	14,534,252	58					
532	27	3,640	184,914	1,302,073	10,503,253	21,717,530	6,092,632	15,624,898	3,969,375	772,522	5,442,735	17,072,398	59					
643	21	3,139	176,218	()	13,728,142	23,841,962	7,368,286	16,473,676	3,198,542	62,717	6,903,998	22,423,458	60					
682	34	3,294	182,150	()	12,658,822	21,704,855	5,861,310	15,843,545	2,207,911	()	2,398,417	19,989,184	61					
265	()	1,753	76,178	()	4,657,634	9,129,819	()	()	1,732,508	()	()	7,733,320	62					
()	()	()	()	()	3,325,709	9,414,100	()	()	()	()	()	6,465,216	63					
()	()	()	()	()	()	()	()	()	()	()	()	2,494,313	64					
1,738	622	28,507	1,343,491	9,575,419	88,276,753	188,675,246	77,833,503	110,841,743	42,456,263	34,199,310	9,881,629	141,289,099	65					
2,277	601	27,531	1,116,158	7,681,003	71,116,948	138,554,768	71,646,991	66,907,777	49,940,939	26,492,962	7,877,940	118,258,243	66					
2,203	301	24,002	914,930	5,046,720	68,103,765	118,634,796	50,706,698	67,928,098	54,972,659	16,823,593	18,913,964	101,911,526	67					
2,154	210	2,206	638,484	()	57,908,066	95,289,023	28,976,386	66,412,637	33,857,475	5,463,552	20,951,183	91,136,451	68					
2,558	36	18,291	554,247	()	41,941,018	61,166,252	15,834,201	45,332,051	13,321,576	()	8,457,123	68,467,540	69					
920	()	6,432	210,054	()	10,938,446	18,910,319	()	()	4,943,183	()	()	20,386,330	70					
()	()	()	()	()	8,040,747	22,437,754	()	()	()	()	()	14,065,456	71					
()	()	()	()	()	()	()	()	()	()	()	()	6,637,708	72					
615	74	6,885	334,672	3,568,949	21,848,287	49,608,834	27,152,064	22,456,770	8,463,563	2,348,369	2,231,909	38,880,819	73					
748	116	6,269	274,009	1,728,288	16,364,607	44,239,280	25,546,817	18,692,443	8,356,734	2,259,538	648,362	30,813,339	74					
702	84	5,023	344,847	1,235,146	16,759,138	35,305,969	21,345,999	13,953,970	7,781,739	2,074,631	1,617,481	28,563,569	75					
830	80	3,870	198,420	()	14,478,735	29,987,847												

MANUFACTURES.

TABLE 45.—WOOL MANUFACTURES—COMPARATIVE SUMMARY, BY

STATE.	Cen- sus.	Num- ber of estab- lish- ments.	Capital.	SALARIED OFFICIALS, CLERKS, ETC.		WAGE-EARNERS AND WAGES.				
				Number.	Salaries.	Total.		Average number.		
						Average number.	Wages.	Men 16 years and over.	Women 16 years and over.	Children under 16 years.
Middle states—Continued.										
New Jersey.....	1905	43	\$21,076,859	327	\$554,767	10,136	\$3,368,140	4,577	4,771	788
	1900	43	18,924,677	210	376,450	8,232	2,574,566	3,877	3,626	729
	1890	35	6,441,571	99	133,517	5,872	1,940,254	2,867	2,786	219
	1880	37	2,991,125			4,072	1,152,754	2,287	1,118	667
	1870	36	1,524,200			1,522	493,054	709	552	261
	1860	45	646,200			986	226,788	608	378	
	1850	41	494,274			898		411	487	
	1840	31	314,650			427		427		
Pennsylvania.....	1905	334	67,477,463	1,329	1,802,760	37,967	14,620,536	17,922	15,517	4,528
	1900	353	57,696,913	900	1,067,315	37,550	14,045,869	18,412	15,220	3,918
	1890	467	52,021,256	940	914,378	38,473	14,117,254	18,572	16,189	3,712
	1880	548	31,898,226			32,989	10,162,244	16,688	11,936	4,365
	1870	672	20,615,413			21,573	7,607,489	10,831	7,714	3,028
	1860	407	5,211,510			8,484	2,016,384	5,488	2,996	
	1850	380	3,005,064			5,726		3,490	2,236	
	1840	235	1,510,546			2,930		2,930		
Delaware ¹	1890	3	450,974	9	12,298	288	91,097	139	110	30
	1880	5	352,559			261	108,504	171	59	31
	1870	11	384,500			399	113,137	186	110	103
	1860	4	117,000			114	27,564	76	38	
	1850	8	148,500			140		122	18	
	1840	2	107,000			83		83		
Maryland ²	1905	6	1,940,186	50	54,285	982	270,461	559	284	139
	1900	4	1,330,549	25	35,625	877	221,215	576	204	97
	1890	9	372,875	7	4,450	376	119,451	190	118	68
	1880	15	343,760			388	69,391	246	100	42
	1870	32	215,245			339	87,069	255	69	15
	1860	35	364,450			414	94,404	281	133	
	1850	38	244,000			362		262	100	
	1840	29	117,630			388		388		
Southern states ³	1905	117	8,721,228	212	253,702	5,046	1,284,936	2,193	2,101	752
	1900	214	7,591,498	214	234,875	4,700	979,188	1,902	2,037	761
	1890	222	7,894,776	325	226,117	5,392	1,338,729	2,303	2,421	668
	1880	447	2,994,517			2,645	493,634	1,498	745	402
	1870	589	3,327,952			2,888	575,529	1,831	669	388
	1860	115	1,744,100			2,205	418,368	1,429	776	
	1850	155	747,360			1,119		808	311	
	1840	115	304,650			488		488		
Virginia.....	1905	24	1,046,094	29	28,537	649	179,242	357	238	54
	1900	28	783,527	39	37,667	362	103,773	214	127	21
	1890	35	845,221	45	22,995	399	94,028	249	119	31
	1880	48	456,750			365	71,720	251	95	19
	1870	68	435,375			278	58,765	190	56	32
	1860	45	463,600			494	106,692	381	113	
	1850	121	392,640			668		478	190	
	1840	41	112,350			222		222		
West Virginia ⁴	1905	14	679,441	26	28,590	412	141,578	271	123	18
	1900	34	721,218	16	17,440	414	113,960	249	145	20
	1890	30	336,281	34	11,512	253	50,407	138	104	11
	1880	55	293,170			353	44,161	226	96	31
	1870	74	236,100			316	59,828	207	79	30
North Carolina.....	1905	13	562,333	25	24,040	425	94,813	213	183	29
	1900	16	347,830	17	9,065	206	39,094	106	91	9
	1890	27	339,088	25	10,411	299	54,918	145	125	29
	1880	49	203,100			185	23,195	120	50	15
	1870	52	237,800			249	39,101	151	81	17
	1860	7	223,000			253	60,036	113	140	
	1850	1	18,000			30		15	15	
	1840	3	9,800			4		4		
South Carolina ⁵	1880	11	7,900			13	1,173	13		
	1870	15	25,900			53	3,815	32	13	8
	1860	1	50,000			92	11,400	37	55	
	1840	3	4,300			6		6		
Georgia.....	1905	9	915,694	20	26,598	781	156,415	369	294	118
	1900	14	455,114	13	16,936	561	97,159	284	189	88
	1890	14	298,539	17	9,367	162	23,034	64	71	27
	1880	32	180,733			142	25,070	72	45	25
	1870	46	936,585			563	122,138	251	191	121
	1860	11	242,500			383	63,348	167	216	
	1850	3	68,000			78		40	38	
	1840	1	2,000			10		10		

¹ Two establishments for Delaware included in Maryland in 1905; in 1900, 2 establishments included in total for Middle states.

² Includes 2 establishments for Delaware in 1905.

³ Includes 2 establishments in South Carolina in 1900.

STATES AND GEOGRAPHIC DIVISIONS: 1840 TO 1905—Continued.

MACHINERY.				Miscellaneous expenses.	Cost of materials used.	PRINCIPAL MATERIALS—QUANTITIES CONSUMED.						Value of products.	
Woolen cards.	Combing machines.	Looms.	Spindles.			Wool in condition purchased.			Raw cotton and cotton yarn, purchased (pounds).	Animal hair and fur and noils, purchased (pounds).	Shoddy, purchased (pounds).		
						Total (pounds).	Foreign (pounds).	Domestic (pounds).					
154	169	4,776	220,486	\$1,267,168	\$11,606,396	37,944,206	3,980,932	33,963,274	2,794,121	746,952	264,764	\$18,142,520	81
207	128	3,576	176,340	1,052,701	8,495,338	18,669,055	5,646,754	13,022,301	2,919,438	91,185	195,983	13,799,284	82
202	29	1,533	77,069	547,886	5,450,490	12,524,210	1,348,047	11,176,163	2,625,882	490,110	2,927,640	8,893,237	83
161	9	1,285	35,791		3,858,992	6,990,378	655,001	6,335,377	1,559,502	1,107,749	2,676,856	5,967,893	84
98		776	26,769		1,618,753	2,856,525	480,347	2,376,178	407,398		27,000	2,616,461	85
61		270	10,361		596,895	1,443,800			239,500			1,197,694	86
					548,367	1,510,289						1,164,446	87
												440,710	88
916	377	16,579	758,427	4,658,388	53,953,186	99,306,459	46,700,507	52,605,952	30,147,639	31,092,393	7,346,250	83,054,561	89
1,262	357	17,265	641,657	4,833,661	45,137,649	73,162,801	40,453,005	32,709,796	37,640,684	24,142,239	6,874,350	71,878,503	90
1,254	188	22,101	474,618	3,221,842	45,173,677	69,387,219	27,877,283	41,509,936	44,218,488	14,258,852	14,232,953	72,393,182	91
1,120	121	16,789	393,387		38,740,330	56,751,365	14,623,020	42,128,345	27,771,271	2,940,522	15,463,878	58,886,250	92
1,429	29	13,265	340,114		28,010,301	31,723,147	6,014,170	25,708,977	11,504,634		7,879,203	45,221,795	93
483		4,334	108,326		5,674,197	7,703,249			4,337,000			10,901,767	94
					3,282,718	7,560,379						5,321,866	95
												2,319,061	96
15		229	7,306	27,404	295,605	531,198	35,369	495,829	314,500		95,890	482,022	97
13		126	4,306		448,285	836,883	203,206	633,677	55,100	20,084	246,778	665,253	98
80		227	8,756		392,614	546,187	12,455	533,732	185,000		96,930	576,067	99
8		76	1,000		75,807	140,000			100,000			153,035	100
					204,172	393,000						251,000	101
												104,700	102
53	2	267	29,906	80,914	868,884	1,815,747		1,815,747	1,050,940	11,596	38,706	1,311,199	103
47		179	15,828	54,181	667,036	1,938,908		1,938,908	637,730		58,326	1,218,378	104
30		114	11,150	14,442	424,855	886,200	100,000		32,050		40,000	579,516	105
60		136	6,580		381,724	822,550		822,550	37,589	250	297,200	538,308	106
61		160	12,348		241,224	521,741	21,450	500,291	37,885		1,000	441,596	107
44		66	2,480		280,431	1,087,772			73,000			635,757	108
					165,568	430,300						295,140	109
												235,900	110
317	24	3,823	159,268	507,111	4,291,830	5,836,577	336,117	5,500,460	8,649,060	750,000	1,937,159	7,095,537	111
373	15	3,291	123,869	299,046	3,493,870	7,948,193	512,883	7,435,310	7,235,610	1,550	1,060,458	5,588,416	112
385	4	3,788	106,541	362,477	4,000,966	8,730,576	357,790	8,372,786	5,395,513	61,741	1,188,847	6,700,545	113
549		1,315	47,989		2,736,023	6,021,980	85,000	5,936,980	1,455,408	500	279,647	3,958,571	114
908		1,322	50,311		2,715,827	5,912,589	1,200	5,911,389	616,459		2,762	4,278,311	115
232		296	16,544		1,634,730	5,042,682			421,800			2,840,550	116
					750,203	2,448,026						1,293,642	117
												321,357	118
49	6	293	21,058	40,285	759,520	1,552,172	1,100	1,551,072	481,649		248,882	1,249,786	119
52	2	221	14,322	22,780	391,659	1,184,231	9,000	1,175,231	101,434		124,351	627,581	120
54		212	12,382	43,972	375,175	975,745	25,367	950,378	105,112	1,500	88,585	609,809	121
54		154	8,186		383,080	862,812	5,000	857,812	104,170	500	60,500	577,968	122
116		137	6,236		317,800	742,200		741,000	27,260			488,352	123
50		121	7,374		389,204	1,131,000			10,000			717,827	124
					488,899	1,554,110						841,013	125
												147,792	126
21	8	166	12,419	32,491	372,608	596,579	25,166	571,413	420,703		196,935	673,142	127
53	1	258	14,180	32,649	359,753	843,979	3,000	840,959	262,417		135,912	567,300	128
41		153	7,164	15,418	202,801	600,823	5,001	595,822	31,200		9,632	328,800	129
72		179	8,081		245,843	602,399		602,399	4,000		33,819	356,986	130
132		120	6,387		307,051	673,003		673,003				475,763	131
25		302	9,509	27,533	494,477	624,659	73,526	551,133	753,435		37,957	691,945	132
25		161	5,334	14,527	204,961	577,750		577,750	96,763		38,365	289,506	133
35		169	10,990	14,758	198,358	449,260	50,760	398,500	282,860	40,374	40,000	308,946	134
57		80	2,374		255,707	576,145	80,000	496,145	118,464		12,444	303,160	135
78		97	2,806		166,497	355,693		355,693	10,000			298,638	136
23		20	1,000		151,005	504,500						291,000	137
					13,950	30,000						23,750	138
												3,900	139
11					19,455	48,950		48,950				24,075	140
25					22,238	55,696		55,696	1,300		700	34,459	141
10		9	350		60,000	250,000						80,000	142
												1,000	143
31	1	634	20,064	41,977	508,814	276,800	10,400	266,400	1,818,025		486,855	778,439	144
31	3	503	11,008	22,430	280,295	272,678	5,200	267,478	1,718,472	1,550	111,357	491,001	145
20		119	3,532	10,887	95,999	208,992	32,000	176,992	87,815	19,867	10,000	173,245	146
42		88	2,224		165,065	366,274		366,274	134,418			239,390	147
72		395	14,465		268,176	620,937		620,937	165,000			471,523	148
30		20	1,480		260,475	1,008,600			142,500			464,420	149
					30,392	153,816						88,750	150
												3,000	151

⁴ No establishments reported in 1860, 1850, and 1840.

⁵ No establishments reported in 1905 and 1850; data for 2 establishments included in total for Southern states in 1900; included in "all other Southern states" in 1890.

MANUFACTURES.

TABLE 45.—WOOL MANUFACTURES—COMPARATIVE SUMMARY, BY

STATE.	Cen- sus.	Num- ber of estab- lish- ments.	Capital.	SALARIED OFFICIALS, CLERKS, ETC.		WAGE-EARNERS AND WAGES.					
				Number.	Salaries.	Total.		Average number.			
						Average number.	Wages.	Men 16 years and over.	Women 16 years and over.	Children under 16 years.	
Southern states—Continued.											
Kentucky.....	1905	21	\$1,935,902	47	\$69,282	917	\$261,458	299	483	135	
	1900	37	1,922,574	25	41,472	868	190,148	184	454	230	
	1890	42	2,705,683	90	89,478	1,904	503,827	804	922	178	
	1880	98	890,750			823	166,189	353	253	217	
	1870	125	700,449			683	159,373	454	137	92	
	1860	37	408,500			437	103,284	350	87		
	1850	25	249,820			318		256	62		
	1840	40	138,000			200		200			
Tennessee.....	1905	27	2,309,772	44	54,350	1,415	327,202	507	564	344	
	1900	51	2,399,518	64	67,073	1,632	294,116	557	759	316	
	1890	49	1,393,679	71	48,620	927	191,037	359	444	124	
	1880	106	418,664			402	67,063	249	111	42	
	1870	148	373,868			428	62,780	342	61	25	
	1860	1	6,000			10	2,472	5	2		
	1850	4	10,900			17		15	2		
	1840	26	25,600			45		45			
Alabama ¹	1900	12	153,303	4	3,640	118	17,695	25	90	3	
	1890	6	18,325	3	1,025	13	2,100	8	5		
	1880	14	28,900			18	3,037	13	5		
	1870	14	22,375			41	4,881	38	1	2	
	1860	6	140,000			198	34,116	95	103		
Mississippi ¹	1900	4	315,700	5	10,166	302	55,192	146	111	45	
	1890	7	1,553,455	13	11,280	1,009	294,930	402	443	224	
	1880	8	331,500			218	53,100	111	61	46	
	1870	11	195,250			116	28,800	34	31	51	
	1860	4	75,500			235	22,620	202	33		
Arkansas ²	1905	4	28,150			11	2,947	6	4	1	
	1900	13	43,525	3	903	27	5,158	14	11	2	
	1890	6	27,435	9	2,950	22	3,281	7	12	3	
	1880	25	85,550			90	13,226	62	21	7	
	1870	13	32,500			31	6,870	29		2	
	1840	1	12,600			1		1			
Texas ³	1900	3	285,663	10	15,763	134	40,674	76	34	24	
	1890	4	371,270	17	18,115	342	120,680	125	176	41	
	1880	1	97,500			36	25,700	28	8		
	1870	20	97,250			100	20,278	80	16	4	
	1860	2	60,000			43	7,680	36	7		
	1850	1	8,000			8		4	4		
All other Southern states ⁴	⁵ 1905	5	1,243,842	21	22,305	436	121,281	171	212	53	
	⁶ 1890	2	5,800	1	364	2	427	2			
	⁷ 1870	3	34,500			30	8,900	23	3	4	
	⁸ 1860	1	75,000			60	6,720	40	20		
Western states.....	1905	136	12,817,426	355	441,022	6,475	2,184,806	2,921	3,162	392	
	1900	194	12,156,823	401	450,939	5,861	1,788,245	2,684	2,861	316	
	1890	287	13,254,918	513	391,937	7,207	2,020,697	3,261	3,517	429	
	1880	505	8,877,427			7,227	1,697,563	3,816	2,357	1,054	
	1870	906	14,897,772			10,172	2,802,135	6,212	2,809	1,151	
	1860	280	1,727,241			1,873	481,812	1,435	438		
	1850	205	1,351,490			1,811		1,341	470		
	1840	196	681,364			1,122		1,122			
Ohio.....	1905	27	3,585,422	75	92,205	1,773	563,031	558	944	271	
	1900	38	2,709,936	84	94,805	1,234	383,848	408	797	29	
	1890	69	2,479,872	106	85,224	1,325	363,802	581	590	154	
	1880	123	1,383,340			1,432	279,614	773	445	214	
	1870	225	3,006,909			2,329	574,164	1,351	710	268	
	1860	122	662,000			753	185,268	567	186		
	1850	130	870,200			1,201		903	298		
	1840	130	537,935			935		935			
Michigan.....	1905	16	887,350	40	43,400	624	239,076	380	242	2	
	1900	17	920,009	29	27,769	512	170,568	323	189		
	1890	33	998,087	44	25,063	536	156,740	284	221	31	
	1880	39	558,800			347	76,240	203	114	30	
	1870	54	1,011,050			667	202,813	408	208	51	
	1860	16	103,950			126	30,672	77	49		
	1850	15	94,000			129		78	51		
	1840	4	34,120			37		37			
Indiana.....	1905	15	1,886,317	40	56,252	1,091	347,011	454	613	24	
	1900	22	2,069,232	72	77,443	1,165	341,472	495	624	46	
	1890	46	2,969,356	108	87,829	2,039	522,009	810	1,117	112	
	1880	81	2,273,705			1,741	462,581	846	587	308	
	1870	175	3,821,913			2,469	726,113	1,450	711	308	
	1860	79	404,341			533	150,276	436	97		
	1850	33	171,545			246		189	57		
	1840	37	77,954			103		103			

¹Included in "all other Southern states" in 1905. No establishments reported in 1850 and 1840.²No establishments reported in 1860 and 1850.³Included in "all other Southern states" in 1905. No establishments reported in 1840.⁴No establishments reported in 1900, 1880, 1850, and 1840.

STATES AND GEOGRAPHIC DIVISIONS: 1840 TO 1905—Continued.

MACHINERY.				Miscellaneous expenses.	Cost of materials used.	PRINCIPAL MATERIALS—QUANTITIES CONSUMED.						Value of products.	
Woolen cards.	Combing machines.	Looms.	Spindles.			Wool in condition purchased.			Raw cotton and cotton yarn, purchased (pounds).	Animal hair and fur and noils, purchased (pounds).	Shoddy, purchased (pounds).		
						Total (pounds).	Foreign (pounds).	Domestic (pounds).					
76	1	986	33,636	\$131,375	\$774,987	1,191,365		1,191,365	1,716,516		461,803	\$1,273,241	152
58	4	533	27,695	59,894	974,417	2,747,742	393,917	2,353,825	1,437,569		144,124	1,431,684	153
100	9	1,661	40,346	184,343	1,631,860	2,828,377	57,037	2,771,340	2,892,500		785,940	2,721,968	154
154		513	14,110		852,405	1,688,663		1,688,663	667,444		117,151	1,264,988	155
208		322	10,509		931,628	1,639,367		1,639,367	275,250			1,312,458	156
83		94	3,990		510,902	1,452,500			170,700			845,226	157
					205,287	673,900						318,819	158
												151,246	159
79	8	1,078	47,258	147,334	945,483	1,171,940	7,500	1,164,440	3,181,414		504,727	1,706,396	160
99		1,239	38,654	86,141	874,359	1,523,442	101,766	1,421,676	3,189,821		487,089	1,517,194	161
80		925	19,938	56,263	760,036	1,448,486	187,625	1,260,861	1,462,967		197,690	1,216,419	162
98		167	6,860		423,054	883,338		883,338	180,416		55,433	620,724	163
177		80	3,614		503,737	1,030,153		1,030,153	101,449		2,062	696,844	164
1			500		5,225	10,000						8,100	165
					1,675	6,200						6,310	166
												14,290	167
8		72	160	15,193	58,197	129,041		129,041	176,562			94,571	168
6		12	288	419	10,997	10,569		10,569	7,500		20,000	17,150	169
15		10	160		49,361	135,316		135,316	10,000			63,745	170
24		2	530		57,338	196,570		196,500	2,000			89,998	171
14		20	1,000		80,790	264,435			5,000			191,474	172
26		130	8,916	17,817	103,308	244,434		244,434	83,060			172,908	173
31		376	9,196	18,054	508,039	1,565,824		1,565,824	416,000		36,000	924,185	174
15		121	3,734		211,646	494,033		494,033	205,896			299,005	175
17		30	344		79,566	154,790		154,790	32,700			147,323	176
13		21	1,000		119,849	270,597			75,600			158,507	177
10	1	24	1,200	475	13,887	40,290	4,340	35,950	1,750			20,245	178
16		40	1,000	398	28,598	129,637		129,637	14,000			42,401	179
7		24	735	752	28,030	67,500		67,500	5,550			38,360	180
29		41	1,360		85,972	189,000		189,000	30,600		300	127,430	181
17					55,782	115,330		115,330				78,690	182
												129	183
4		94	2,600	17,428	117,327	291,979		291,979	86,700		19,260	196,340	184
9		135	1,900	17,333	188,607	572,400		572,400	103,000		1,000	359,230	185
2		12	600		44,435	175,000		175,000				80,500	186
29		30	1,070		86,817	278,045		278,045				152,968	187
4					25,980	81,900			18,000			38,796	188
					10,000	30,000						15,000	189
26	4	340	14,124	76,641	422,054	382,772	214,085	168,687	275,568	750,000		702,343	190
2		2	50	278	1,064	2,600		2,600	1,000			2,433	191
13		100	4,000		19,197	50,875		50,875	1,500			31,295	192
4					31,300	69,150						45,200	193
428	27	2,400	177,067	1,128,599	7,508,394	21,725,519	2,533,525	19,191,994	2,067,686	6,138	1,941,903	12,375,039	194
463	14	2,813	176,407	722,046	5,889,712	18,996,587	1,400,236	17,596,351	2,145,184	85,854	958,484	9,992,370	195
574	15	3,133	176,869	814,072	7,125,149	22,859,293	1,743,013	21,116,280	2,956,355	10,762	943,658	11,673,341	196
807	3	2,786	156,012		7,087,326	17,702,458		195,000	1,508,482	80,500	660,989	10,722,024	197
1,701		3,984	226,638		10,006,478	20,631,163	157,825	20,473,338	903,027		5,225	16,607,375	198
383		382	18,989		1,226,844	3,246,751						2,269,306	199
					909,808	2,858,990						1,770,635	200
												778,448	201
69	11	756	34,733	479,886	2,137,265	4,624,306	1,458,394	3,165,912	751,594	3,931	278,068	3,586,528	202
78	5	674	30,400	242,007	1,681,166	3,262,140	24,825	3,237,315	647,347	6,660	217,940	2,826,321	203
104	5	712	32,263	136,050	1,398,892	3,500,244	474,764	3,025,480	357,152	3,900	199,680	2,280,002	204
182	2	638	35,200		1,153,929	2,695,424	165,000	2,530,424	310,824	80,000	134,063	1,779,439	205
334		1,052	52,789		2,119,809	3,972,234	62,200	3,910,034	175,464			3,467,699	206
173		96	5,827		482,994	1,190,751						843,516	207
					578,423	1,657,726						1,111,027	208
												685,757	209
62		157	19,448	125,173	796,643	2,524,285	450,000	2,074,285	150,197		133,736	1,338,493	210
52		159	14,707	49,676	641,133	2,300,454	951,981	1,406,473	58,650		119,261	996,836	211
54		158	13,559	60,280	603,374	2,033,321	408,026	1,625,295	2,440		269,148	988,652	212
51		167	10,688		356,614	869,025		869,025	5,310		37,163	481,517	213
116		232	15,650		653,700	1,391,889		1,391,889	3,550			1,204,868	214
14		20	1,000		69,010	103,100						139,246	215
					43,402	102,250						90,242	216
												9,734	217
80	2	567	40,676	136,458	1,109,962	3,381,413	109,167	3,272,246	536,360	1,301	71,831	1,780,499	218
92		919	46,864	112,428	970,562	3,552,301	400,000	3,152,301	848,443	1,194	88,235	1,658,965	219
135	4	1,006	46,690	235,503	1,880,515	6,324,884	632,833	5,692,051	1,961,374	600	154,303	3,036,682	220
160	1	814	36,886		1,823,390	4,360,456	10,000	4,350,456	831,776		345,656	2,729,347	221
346		1,180	57,083		2,684,315	5,029,618	80,157	4,949,461	513,595			4,329,711	222
112		177	8,266		352,302	940,000						649,771	223
					120,486	413,350						205,802	224
												58,867	225

* Includes establishments distributed as follows: Alabama, 2; Mississippi, 1; Texas, 2.

* Includes establishments distributed as follows: Louisiana, 1; South Carolina, 1.

* Includes establishments distributed as follows: Louisiana, 2; Florida, 1.

* Includes Louisiana, 1.

MANUFACTURES.

TABLE 45.—WOOL MANUFACTURES—COMPARATIVE SUMMARY, BY

STATE.	Cen- sus.	Num- ber of estab- lish- ments.	Capital.	SALARIED OFFICIALS, CLERKS, ETC.		WAGE-EARNERS AND WAGES.				
				Number.	Salaries.	Total.		Average number.		
						Average number.	Wages.	Men 16 years and over.	Women 16 years and over.	Children under 16 years.
Western states—Continued.										
Wisconsin ¹	1905	30	\$2,537,281	70	\$90,348	1,204	\$406,084	587	554	63
	1900	36	2,414,652	67	88,890	1,066	317,554	477	463	126
	1890	33	2,496,377	69	63,570	1,018	297,169	454	553	11
	1880	48	1,349,954			847	214,993	426	378	43
	1870	67	1,247,389			802	230,706	519	211	72
	1860	15	100,600			105	27,036	74	31	
	1850	9	31,225			25		25		
Illinois.....	1905	10	1,106,851	44	64,801	532	191,395	288	240	4
	1900	14	1,610,425	57	77,623	727	222,457	398	294	35
	1890	23	1,649,918	49	40,783	865	272,997	433	405	27
	1880	53	1,327,553			1,042	296,225	527	365	150
	1870	109	2,962,443			1,736	535,185	1,040	468	228
	1860	25	210,100			166	45,180	132	34	
	1850	16	154,500			178		124	54	
	1840	16	26,205			34		34		
Minnesota ²	1905	16	633,726	28	34,300	343	129,137	180	161	2
	1900	19	762,825	20	23,450	300	90,662	160	119	21
	1890	21	563,771	25	19,025	316	101,942	169	146	1
	1880	13	190,500			229	46,108	106	73	50
	1870	10	246,600			146	45,592	77	60	9
Iowa.....	1905	10	713,225	17	15,946	246	89,231	137	109	
	1900	12	494,074	26	16,611	256	64,596	126	128	2
	1890	14	694,600	38	28,850	340	104,350	150	174	16
	1880	34	553,500			499	117,792	307	132	60
	1870	85	1,440,484			1,088	269,432	685	293	110
	1860	12	82,500			120	23,652	96	24	
	1850	1	10,000			7		7		
	1840									
Missouri.....	1905	5	511,664	15	11,510	160	50,740	102	58	
	1900	25	490,747	18	20,928	237	63,314	139	79	19
	1890	35	720,616	54	25,288	456	97,122	209	188	59
	1880	98	726,150			689	109,877	412	144	133
	1870	156	716,524			718	137,408	548	85	85
	1860	11	103,750			70	19,728	53	17	
	1850	1	20,000			25		15	10	
	1840	9	5,100			13		13		
Kansas ³	1880	5	131,925			124	25,825	66	40	18
	1870	9	96,000			91	30,682	56	24	11
Utah ⁴	1905	3	446,915	9	8,240	284	89,254	139	119	26
	1900	6	454,981	14	10,050	194	69,681	100	65	29
	1890	9	579,209	15	13,505	259	90,651	150	95	14
	1880	11	382,000			277	68,108	150	79	48
	1870	15	223,400			106	45,040	58	39	9
All other Western states ⁵	⁶ 1905	4	508,685	17	23,960	218	79,847	98	122	
	⁶ 1900	5	229,292	14	13,370	170	64,093	58	103	9
	⁷ 1890	4	103,112	5	2,800	53	13,845	21	28	4
	⁸ 1870	1	65,000			20	2,000	20		
Pacific states ⁹	1905	16	2,786,297	59	89,990	1,088	431,645	640	403	45
	1900	16	2,226,294	47	58,280	1,102	368,520	687	363	52
	1890	14	3,969,065	86	74,365	1,580	388,606	1,081	452	47
	1880	20	2,283,300			1,080	424,406	892	149	39
	1870	14	2,174,200			838	342,413	713	39	86
	1860	2	170,000			90	49,800	67	23	
Oregon ⁹	¹⁰ 1905	8	1,323,982	27	44,605	595	238,717	335	221	39
	1900	11	1,175,820	29	32,820	672	208,695	423	216	33
	1890	6	1,350,585	44	32,775	358	142,538	201	134	23
	1880	10	566,800			216	86,088	166	33	17
	1870	9	389,200			179	112,213	129	8	42
	1860	1	70,000			30	16,200	27	3	
California ⁹	1905	8	1,462,315	32	45,385	493	192,928	305	182	6
	1900	5	1,050,474	18	25,460	430	159,825	264	147	19
	1890	8	2,618,480	42	41,590	1,222	246,068	880	318	24
	1880	9	1,676,500			835	334,318	708	108	19
	1870	5	1,785,000			659	230,200	584	21	44
	1860	1	100,000			60	33,600	40	20	

¹ No establishments reported in 1840.² No establishments reported in 1860, 1850, and 1840.³ Included in "all other Western states" in 1905, 1900, and 1890. No establishments reported in 1860, 1850, and 1840.⁴ No establishments reported in 1880, 1860, 1850, and 1840.⁵ Includes establishments distributed as follows: Idaho, 1; Kansas, 2; North Dakota, 1.

STATES AND GEOGRAPHIC DIVISIONS: 1840 TO 1905—Continued.

MACHINERY.				Miscellaneous expenses.	Cost of materials used.	PRINCIPAL MATERIALS—QUANTITIES CONSUMED.						Value of products.	
Woolen cards.	Combing machines.	Looms.	Spindles.			Wool in condition purchased.			Raw cotton and cotton yarn, purchased (pounds).	Animal hair and fur and noils, purchased (pounds).	Shoddy, purchased (pounds).		
						Total (pounds).	Foreign (pounds).	Domestic (pounds).					
79	8	311	37,518	\$190,868	\$1,487,778	4,383,198	165,964	4,217,234	92,837	808	745,790	\$2,435,473	226
72	9	200	31,744	128,005	1,168,397	4,523,001	18,096	4,504,905	163,754		308,033	1,864,420	227
63	6	258	24,802	124,124	1,117,013	3,125,572	164,090	2,961,482	111,323	6,262	196,274	1,844,364	228
75		220	16,689		892,793	2,066,188		2,066,188	50,955	500	35,235	1,480,069	229
135		226	16,445		688,193	1,642,637	15,468	1,627,169				1,258,417	230
19		20	1,000		85,743	265,000						172,720	231
					32,630	134,200						87,992	232
41		130	14,258	59,770	623,284	1,301,783	350,000	951,783	352,225		352,439	1,007,824	233
46		184	16,156	80,086	550,320	1,439,452		1,439,452	66,717	78,000	128,244	1,039,087	234
57		323	18,745	110,159	789,310	2,566,621	59,000	2,507,621	319,179		67,253	1,299,506	235
106		374	20,992		1,332,798	3,003,740		3,003,740	114,531		83,007	1,896,460	236
250		633	36,888		1,701,323	3,560,829		3,560,829	151,650			2,849,249	237
37		20	1,000		112,697	327,800						193,388	238
					115,367	396,964						206,572	239
												9,540	240
34	1	119	8,719	51,923	462,672	2,263,413		2,263,413	60,000		25,416	791,224	241
38		143	9,524	36,178	272,483	1,285,311	3,334	1,281,977	3,525		8,475	496,812	242
37		125	7,510	46,211	309,378	1,358,290		1,358,290			4,000	539,995	243
21		59	3,852		155,867	557,580	20,000	537,580	6,365		18,000	253,378	244
19		39	2,664		108,540	254,857		254,857				219,862	245
28	5	160	9,397	33,664	364,568	1,194,108		1,194,108	16,138	100	63,623	572,936	246
26		112	9,552	16,831	175,426	773,053		773,053	4,603		2,756	296,500	247
36		158	10,828	40,050	505,503	1,880,532	300	1,880,232	10,610		46,000	695,218	248
56		166	11,025		435,747	1,407,510		1,407,510	18,597		865	679,904	249
199		374	31,462		998,073	2,273,428		2,273,428	23,148		1,225	1,647,606	250
13		20	1,000		67,293	168,700						127,640	251
					3,500	14,500						13,000	252
												800	253
14		65	4,868	18,685	175,155	557,521		557,521	38,100		131,000	265,292	254
36		196	7,762	21,067	206,579	464,946		464,946	279,233		80,779	348,974	255
52		261	12,984	29,775	311,881	1,052,229	4,000	1,048,229	155,395		7,000	548,457	256
126		193	12,622		681,711	1,811,635		1,811,635	115,227		4,000	930,961	257
258		183	10,371		849,313	1,979,671		1,979,671	25,500			1,256,213	258
15		29	896		56,745	191,400						143,025	259
					16,000	80,000						56,000	260
												13,750	261
9		41	2,636		107,251	364,000		364,000	23,200		2,000	211,525	262
24		29	1,616		86,105	200,000		200,000	1,300			153,150	263
12		82	5,240	23,564	170,220	744,892		744,892	41,835		25,000	268,340	264
17		94	6,974	17,354	121,828	744,469		744,469	64,212		1,761	222,343	265
31		99	7,960		163,864	800,500		800,500	38,632			338,534	266
21		114	5,422		147,226	566,900		566,900	31,697		1,000	279,424	267
19		31	1,430		98,272	276,000		276,000	8,320			199,600	268
9		53	2,210	8,608	180,847	750,600		750,600	28,400		115,000	328,430	269
6		36	2,724	18,414	101,818	591,460		591,460	8,700		3,000	242,112	270
5		33	1,528	4,765	45,419	217,100		217,100	250			101,931	271
1		5	240		12,775	50,000		50,000			4,000	21,000	272
78	1	386	28,718	254,992	1,071,351	4,200,115	175,743	4,024,372	220,681	2,000	115,572	1,965,595	273
65		317	23,119	152,584	875,300	4,043,265		4,043,265	174,819		113,798	1,585,178	274
91		387	24,650	255,230	1,116,418	5,065,619	145,000	4,920,619	213,864		58,111	1,939,965	275
83		298	23,388		1,277,025	4,720,100	20,000	4,700,100	234,026	25,000	95,150	2,253,888	276
67		275	8,200		835,736	2,871,400		2,871,400	100,000		1,800	1,608,611	277
10		45	780		77,000	550,000						235,000	278
31		181	12,966	124,609	566,988	2,458,923		2,458,923	123,136	2,000	85,742	1,142,356	279
35		175	12,187	74,323	465,855	1,997,954		1,997,954	107,384		73,084	897,824	280
21		95	6,052	86,906	327,502	1,366,148		1,366,148	106,546		5,000	614,932	281
21		56	4,248		227,486	985,250		985,250	6,000		1,000	549,030	282
21		90	4,320		227,595	943,400		943,400				505,857	283
4		15	280		27,000	150,000						85,000	284
47	1	205	15,752	130,383	504,363	1,741,192	175,743	1,565,449	97,545		29,830	823,239	285
30		142	10,432	78,261	409,445	2,045,311		2,045,311	67,435		40,714	687,354	286
70		292	18,578	168,324	788,916	3,699,471	145,000	3,554,471	107,318		53,111	1,325,033	287
60		230	18,740		997,539	3,574,850	20,000	3,554,850	228,026	25,000	94,150	1,634,858	288
46		185	3,880		608,141	1,928,000		1,928,000	100,000		1,800	1,102,754	289
6		30	500		50,000	400,000						150,000	290

⁶ Includes establishments distributed as follows: Colorado, 1; Idaho, 1; Kansas, 1; North Dakota, 1; Wyoming, 1.

⁷ Includes establishments distributed as follows: Idaho, 1; Kansas, 1; South Dakota, 2.

⁸ Includes New Mexico, 1.

⁹ No establishments reported in 1850 and 1840.

¹⁰ Includes 1 establishment in Washington.

MANUFACTURES.

TABLE 46.—WOOL MANUFACTURES—SUMMARY, BY INDUSTRIES: 1905.

	NUMBER OF ESTABLISHMENTS BY CHARACTER OF OWNERSHIP.					CAPITAL.				
	Total.	Individual.	Firm and limited partnership.	Incorporated company.	Miscellaneous.	Total.	Land.	Buildings.	Machinery, tools, and implements.	Cash and sundries.
Total.....	1,213	333	311	567	2	\$370,861,691	\$25,745,617	\$52,232,351	\$94,205,323	\$198,678,400
Worsted goods.....	226	43	52	131	.....	162,464,929	11,766,470	20,201,406	41,595,093	88,901,960
Woolen goods.....	792	236	202	352	2	140,302,488	10,223,761	21,226,953	35,090,559	73,761,215
Carpets and rugs.....	139	44	46	49	.....	56,781,074	3,153,804	8,696,950	15,129,294	29,801,026
Felt goods.....	39	4	1	31	.....	9,667,136	531,582	1,865,762	2,143,294	5,126,498
Wool hats.....	17	6	7	4	.....	1,646,064	70,000	241,280	247,083	1,087,701

	Proprietors and firm members.	SALARIED OFFICIALS, CLERKS, ETC.									
		Aggregate.		Officers of corporations.		General superintendents, managers, clerks, etc.					
						Total.		Men.		Women.	
		Number.	Salaries.	Number.	Salaries.	Number.	Salaries.	Number.	Salaries.	Number.	Salaries.
Total.....	1,107	5,616	\$8,177,345	792	\$2,250,889	4,824	\$5,926,456	4,281	\$5,647,753	543	\$278,703
Worsted goods.....	188	1,847	2,904,960	207	712,129	1,640	2,192,831	1,479	2,108,380	161	84,451
Woolen goods.....	729	2,477	3,430,855	458	1,040,766	2,019	2,390,089	1,782	2,263,455	237	126,594
Carpets and rugs.....	149	1,023	1,396,691	78	349,350	945	1,047,341	837	999,419	108	47,522
Felt goods.....	18	201	350,594	45	135,044	156	215,550	126	200,014	30	15,536
Wool hats.....	23	68	94,245	4	13,600	64	80,645	57	76,445	7	4,200

	WAGE-EARNERS, INCLUDING PIECEWORKERS, AND TOTAL WAGES.									
	Greatest number employed at any one time during the year.	Least number employed at any one time during the year.	Total.		Men 16 years and over.		Women 16 years and over.		Children under 16 years.	
			Average number.	Wages.	Average number.	Wages.	Average number.	Wages.	Average number.	Wages.
Total.....	202,954	154,478	179,976	\$70,797,524	94,841	\$44,237,484	72,222	\$23,992,908	12,913	\$2,567,132
Worsted goods.....	78,244	58,859	69,251	26,269,787	29,883	14,493,965	32,130	10,379,154	7,238	1,396,668
Woolen goods.....	82,241	62,845	72,747	28,827,556	44,452	19,850,052	24,552	8,184,449	3,743	793,055
Carpets and rugs.....	36,472	28,875	33,221	13,724,233	16,930	8,271,441	14,408	5,084,201	1,883	368,591
Felt goods.....	3,744	2,829	3,254	1,356,754	2,546	1,135,013	699	219,147	9	2,594
Wool hats.....	2,253	1,050	1,503	619,194	1,030	487,013	433	125,957	40	6,224

	AVERAGE NUMBER OF WAGE-EARNERS, INCLUDING PIECEWORKERS, EMPLOYED DURING EACH MONTH.											
	Men 16 years and over.											
	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
Total.....	94,780	94,925	95,983	95,162	94,960	93,674	92,911	92,933	94,396	95,794	96,389	96,185
Worsted goods.....	29,964	29,850	30,202	29,618	29,249	28,760	28,291	28,761	29,942	30,718	31,602	31,589
Woolen goods.....	44,109	44,281	44,997	44,672	44,891	43,975	44,076	44,011	44,475	44,893	44,592	44,452
Carpets and rugs.....	17,597	17,623	17,478	17,511	17,294	17,100	16,549	16,125	15,969	16,336	16,594	16,984
Felt goods.....	2,351	2,369	2,446	2,426	2,445	2,699	2,716	2,723	2,728	2,607	2,559	2,483
Wool hats.....	759	802	860	935	1,031	1,140	1,279	1,313	1,282	1,240	1,042	677

	AVERAGE NUMBER OF WAGE-EARNERS, INCLUDING PIECEWORKERS, EMPLOYED DURING EACH MONTH—continued.											
	Women 16 years and over.											
	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
Total.....	72,246	72,587	73,229	72,496	72,052	70,871	69,937	70,281	71,717	73,366	73,956	73,926
Worsted goods.....	31,648	31,773	32,265	31,866	31,230	30,672	30,613	31,137	32,298	33,590	34,408	34,000
Woolen goods.....	24,751	24,867	24,967	24,711	24,909	24,356	24,006	23,936	24,125	24,740	24,594	24,462
Carpets and rugs.....	14,847	14,904	14,937	14,837	14,779	14,687	14,003	13,918	13,779	13,883	13,914	14,408
Felt goods.....	688	703	702	711	703	685	693	688	700	700	708	707
Wool hats.....	312	340	358	371	431	471	622	602	615	453	332	289

TABLE 46.—WOOL MANUFACTURES—SUMMARY, BY INDUSTRIES: 1905—Continued.

	AVERAGE NUMBER OF WAGE-EARNERS, INCLUDING PIECEWORKERS, EMPLOYED DURING EACH MONTH—continued.											
	Children under 16 years.											
	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
Total.....	12,785	12,817	12,862	12,666	12,604	12,335	12,714	12,998	13,202	13,318	13,373	13,282
Worsted goods.....	6,995	7,041	7,102	7,061	6,917	6,872	7,036	7,338	7,465	7,646	7,762	7,621
Woolen goods.....	3,706	3,758	3,773	3,684	3,750	3,535	3,704	3,775	3,844	3,827	3,753	3,747
Carpets and rugs.....	2,053	1,987	1,951	1,876	1,885	1,864	1,832	1,813	1,822	1,801	1,827	1,885
Felt goods.....	10	10	10	10	10	9	9	8	8	8	8	8
Wool hats.....	21	21	26	25	42	55	73	64	63	36	23	21

	SKILLED OPERATIVES (AVERAGE NUMBER).						MACHINERY.							
	Spinners.			Weavers.			Sets of cards (number).					Combing machines (number).		
	Men 16 years and over.	Women 16 years and over.	Children under 16 years.	Men 16 years and over.	Women 16 years and over.	Children under 16 years.	Total.	Woolen.	Worsted.	Shoddy.	Cotton.	Total.	Of American manufacture.	Of foreign manufacture.
Total.....	9,863	8,202	3,562	27,163	24,903	508	8,266	5,968	1,628	174	496	1,549	386	1,163
Worsted goods.....	2,527	5,693	2,388	9,004	7,569	228	1,841	300	1,346	1	194	1,312	259	1,053
Woolen goods.....	6,750	1,568	1,020	11,013	12,369	231	5,149	4,739	41	138	231	128	81	47
Carpets and rugs.....	531	936	154	7,055	5,050	49	686	386	238	3	59	109	46	63
Felt goods.....	69	5		91	115		466	419	3	32	12			
Wool hats.....							124	124						

MACHINERY—continued.

Spindles (number).										
Total.	Producing.						Doubling and twisting.			
	Mule.			Frame.						
	Woolen.	Worsted.	Cotton.	Woolen.	Worsted.	Cotton.	Woolen.	Worsted.	Cotton.	
Total.....	4,021,098	2,140,753	313,862	40,320	28,663	875,743	57,870	110,626	441,038	12,223
Worsted goods.....	1,618,207	130,335	306,662	16,000	300	731,331	32,302	9,932	386,902	4,443
Woolen goods.....	2,129,727	1,902,266	7,200	24,320	28,363	32,368	16,976	98,546	15,408	4,280
Carpets and rugs.....	255,347	90,695				112,044	8,592	1,788	38,728	3,500
Felt goods.....	17,817	17,457						360		

MACHINERY—continued.

	Looms on woolen and worsted goods (number).						Looms on carpets and rugs (number).				
	Total.	Power.				Hand.	Total.	Ingrain.		Broad ingrain.	
		Broad (50 inches or over, reed space).		Narrow (under 50 inches, reed space).				Power.	Hand.	Power.	Hand.
		On woolen goods.	On worsted goods.	On woolen goods.	On worsted goods.	On woolen or worsted goods.					
Total.....	66,293	27,171	19,722	10,933	8,401	66	11,692	4,189	82	412	42
Worsted goods.....	30,910	3,192	18,694	1,442	7,568	14					
Woolen goods.....	32,957	23,071	901	8,630	303	52					
Carpets and rugs.....	2,161	678	127	826	530		11,692	4,189	82	412	42
Felt goods.....	265	230		35							

MACHINERY—continued.

	Looms on carpets and rugs (number)—Continued.											
	Venetian.		Tapestry Brussels (power).	Tapestry velvet (power).	Body Brussels (power).	Wilton (power).	Axminster (power).	Moquette (power).	Wilton rug (power).	Tapestry rug (power).	Smyrna rug.	
	Power.	Hand.									Power.	Hand.
Total.....	88	3	1,207	1,047	549	639	1,306	127	71	236	1,131	563
Carpets and rugs.....	88	3	1,207	1,047	549	639	1,306	127	71	236	1,131	563

MANUFACTURES.

TABLE 46.—WOOL MANUFACTURES—SUMMARY, BY INDUSTRIES: 1905—Continued.

	MACHINERY—continued.			MISCELLANEOUS EXPENSES.				
	Pickers (num- ber).	Garnet ma- chines (num- ber).	Formers for felt hats (number).	Total.	Rent of works.	Taxes.	Rent of offices, interest, insur- ance, etc.	Contract work.
Total.....	1,812	245	14	\$21,588,465	\$832,357	\$1,524,793	\$18,010,607	\$1,220,708
Worsted goods.....	112	41	.....	8,301,579	432,728	500,069	6,687,346	681,436
Woolen goods.....	1,529	177	.....	8,218,766	288,640	646,223	6,873,819	410,084
Carpets and rugs.....	79	18	.....	4,162,146	91,026	334,060	3,612,946	124,114
Felt goods.....	72	9	10	612,766	8,270	35,566	566,501	2,429
Wool hats.....	20	.....	4	293,208	11,693	8,875	269,995	2,645

	Aggregate cost.	Total cost.	MATERIALS USED.					
			Purchased in raw state.					
			Total cost.	Wool.				Foreign and domestic, scoured (pounds).
				Foreign, in condition pur- chased.		Domestic, in condition pur- chased.		
				Pounds.	Cost.	Pounds.	Cost.	
Total.....	\$242,561,096	\$128,713,591	152,562,532	\$37,674,830	330,963,563	\$82,073,949	282,194,618	
Worsted goods.....	109,658,481	64,958,627	74,224,096	21,373,152	187,143,988	41,361,564	139,173,774	
Woolen goods.....	87,830,825	47,875,088	24,679,225	5,387,163	132,656,502	37,311,572	102,106,291	
Carpets and rugs.....	37,947,954	11,275,846	50,463,653	10,114,184	856,868	316,962	31,551,895	
Felt goods.....	5,754,026	3,979,585	3,089,041	769,464	8,779,197	2,619,124	8,131,082	
Wool hats.....	1,369,810	624,445	106,517	30,867	1,527,008	464,727	1,231,576	

	MATERIALS USED—continued.							
	Purchased in raw state—Continued.							
	Animal hair and fur.							
	Camel, alpaca, and vicuña hair.		Mohair.				Buffalo, cow, and other animal hair and fur.	
			Domestic.		Turkish and other foreign.			
	Pounds.	Cost.	Pounds.	Cost.	Pounds.	Cost.	Pounds.	Cost.
Total.....	1,578,800	\$320,280	2,684,573	\$839,731	2,935,623	\$1,077,629	36,286,430	\$2,185,953
Worsted goods.....	1,563,407	315,712	1,881,028	574,226	1,751,455	692,265	544,359	65,086
Woolen goods.....	15,393	4,568	487,065	149,516	809,283	221,294	22,442,973	1,304,690
Carpets and rugs.....	.....	.....	.....	.....	.....	.....	6,805,802	593,538
Felt goods.....	.....	.....	243,730	85,306	289,988	122,495	6,449,916	165,996
Wool hats.....	.....	.....	72,750	30,683	93,897	41,575	43,380	56,593

	MATERIALS USED—continued.							
	Purchased in raw state—Continued.							
	Cotton.							
	Total.		Sea-island.		Other domestic.		Egyptian and other foreign.	
	Pounds.	Cost.	Pounds.	Cost.	Pounds.	Cost.	Pounds.	Cost.
Total.....	36,593,401	\$4,541,219	433,444	\$52,834	32,417,357	\$3,948,504	3,742,600	\$539,881
Worsted goods.....	4,333,576	576,622	12,000	2,875	2,473,503	337,245	1,848,073	236,502
Woolen goods.....	28,279,832	3,496,285	421,444	49,959	25,963,861	3,142,947	1,894,527	303,379
Carpets and rugs.....	1,997,369	251,112	.....	.....	1,997,369	251,112	.....	.....
Felt goods.....	1,982,624	217,200	.....	.....	1,982,624	217,200	.....	.....

TABLE 46.—WOOL MANUFACTURES—SUMMARY, BY INDUSTRIES: 1905—Continued.

	MATERIALS USED—continued.								
	Purchased in partially manufactured form.								
	Total cost.	Tailors' clippings, rags, etc.		Shoddy.		Wool waste and noils.		Camel, alpaca, and vicuña noils.	
		Pounds.	Cost.	Pounds.	Cost.	Pounds.	Cost.	Pounds.	Cost.
Total.....	\$85,496,911	31,059,536	\$5,748,070	35,782,056	\$4,833,949	29,359,788	\$6,657,841	681,201	\$186,153
Worsted goods.....	34,480,518	5,344	362	2,327,557	413,015	2,224,408	688,257	1,702	876
Woolen goods.....	26,164,584	79,361,946	5,668,272	29,591,899	4,059,651	22,758,543	5,067,713	679,499	185,277
Carpets and rugs.....	22,957,580	371,822	14,325	2,297,806	200,785	2,170,156	340,798		
Felt goods.....	1,080,578	1,320,424	65,111	1,532,127	157,031	1,919,318	441,666		
Wool hats.....	513,651			32,667	3,467	287,363	119,407		

	MATERIALS USED—continued.							
	Purchased in partially manufactured form—Continued.							
	Mohair noils.		Tops.		Yarns.			
					Woolen.		Worsted.	
	Pounds.	Cost.	Pounds.	Cost.	Pounds.	Cost.	Pounds.	Cost.
Total.....	400,952	\$125,563	10,843,036	\$5,379,333	33,181,488	\$9,270,883	42,403,705	\$30,309,750
Worsted goods.....	37,765	21,354	8,962,183	4,959,614	2,024,978	1,160,180	26,769,263	21,473,093
Woolen goods.....	330,921	92,750	198,746	113,464	3,725,110	1,462,702	4,278,253	3,431,418
Carpets and rugs.....	2,325	511	1,606,770	253,609	32,431,400	6,648,001	11,355,993	5,405,072
Felt goods.....	29,651	10,843	75,202	52,573			196	167
Wool hats.....	290	105	135	73				

	MATERIALS USED—continued.							
	Purchased in partially manufactured form—Continued.							
	Yarns—Continued.							
	Merino (cotton mixed).		Cotton.		Silk.		Spun silk.	
	Pounds.	Cost.	Pounds.	Cost.	Pounds.	Cost.	Pounds.	Cost.
Total.....	3,618,407	\$770,627	60,429,356	\$12,896,381	202,578	\$947,787	285,748	\$914,549
Worsted goods.....	879,095	320,118	13,719,123	3,827,767	176,918	815,665	128,012	499,486
Woolen goods.....	1,579,080	260,989	18,878,949	4,205,096	25,652	132,091	81,725	232,641
Carpets and rugs.....	1,036,138	156,885	27,421,831	4,757,850			76,000	182,400
Felt goods.....	124,184	32,635	409,453	105,758	8	31	11	22

	MATERIALS USED—continued.								
	Purchased in partially manufactured form—Continued.								
	Yarns—Continued.				Wool hat bodies and hats in the rough.		All other materials which are components of the product (cost).	Soap.	
	Linen.		Jute, ramie, and other vegetable fiber.		Dozens.	Cost.		Pounds.	Cost.
Total.....	3,252,529	\$1,368,145	49,705,980	\$3,426,515	12,089	\$25,997	\$2,635,368	45,743,409	\$1,895,614
Worsted goods.....	1,500	1,275	13,171	1,702			297,754	15,780,471	653,834
Woolen goods.....	2,007	2,005	395,101	16,136			1,534,469	24,988,227	1,048,004
Carpets and rugs.....	8,228,200	1,355,892	49,119,558	3,404,516			236,936	3,069,212	100,549
Felt goods.....	20,822	8,973	178,150	4,161			201,607	1,856,017	87,883
Wool hats.....					12,089	25,997	364,602	49,482	5,344

MANUFACTURES.

TABLE 46.—WOOL MANUFACTURES—SUMMARY, BY INDUSTRIES: 1905—Continued.

	MATERIALS USED—continued.								Cotton yarn made in mill for use therein (pounds).	Shoddy made in mill for use therein (pounds).
	Oil for preparing wool for cards and combs.		Chemicals and dyestuffs (cost).	Fuel (cost).	Rent of power and heat (cost).	Mill supplies (cost).	All other materials (cost).	Freight (cost).		
	Gallons.	Cost.								
Total.....	4,142,108	\$1,212,463	\$9,177,681	\$5,097,417	\$278,089	\$3,167,494	\$5,339,859	\$1,581,977	5,720,319	70,801,994
Worsted goods.....	658,093	302,043	2,823,569	2,101,094	108,780	1,378,129	2,307,629	483,658	938,325	256,567
Woolen goods.....	3,089,062	778,995	4,632,981	2,662,161	74,181	1,319,706	2,076,128	898,997	3,008,798	70,102,848
Carpets and rugs.....	309,311	110,462	1,467,476	714,929	32,673	402,349	784,816	101,274	1,773,196	.....
Felt goods.....	84,484	20,534	189,750	171,666	2,335	54,110	91,337	76,248	.....	442,079
Wool hats.....	1,158	129	63,905	46,967	120	13,200	79,949	21,800	.....	500

	Aggregate value.	PRODUCTS.							
		All-wool woven goods, whether woolen or worsted.							
		Wool cloths, doeskins, cas- simeres, chevots, etc.		Worsted coatings, serges, and suitings.		Woolen overcoatings, cloakings, kerseys, etc.		Worsted overcoatings and cloakings.	
		Square yards.	Value.	Square yards.	Value.	Square yards.	Value.	Square yards.	Value.
Total.....	\$300,934,003	42,487,566	\$29,556,252	59,592,811	\$56,731,196	22,411,530	\$16,934,112	1,057,668	\$546,170
Worsted goods.....	165,745,052	1,014,843	752,768	55,147,589	53,359,083	271,871	164,838	617,120	300,308
Woolen goods.....	142,196,658	41,472,723	28,803,484	4,445,222	3,372,113	22,139,659	16,769,274	440,548	245,862
Carpets and rugs.....	61,586,433	.....	.....	.....	.....	.....	.....	.....	.....
Felt goods.....	8,948,594	.....	.....	.....	.....	.....	.....	.....	.....
Wool hats.....	2,457,266	.....	.....	.....	.....	.....	.....	.....	.....

	PRODUCTS—continued.									
	All-wool woven goods, whether woolen or worsted—Continued.									
	Wool dress goods, sack- ings, tricots, etc., and opera and similar flannels.		Worsted dress goods, cashmeres, serges, buntings, etc.		Carriage cloths of all weights.		Flannels for under- wear.		Blankets.	
	Square yards.	Value.	Square yards.	Value.	Square yards.	Value.	Square yards.	Value.	Square yards.	Value.
Total.....	48,889,643	\$19,832,687	66,428,825	\$27,802,181	1,741,765	\$964,557	8,710,131	\$2,045,858	7,414,563	\$2,793,284
Worsted goods.....	3,743,372	1,915,559	65,918,276	27,517,441	155	277	.....	.....	390,691	98,344
Woolen goods.....	45,131,024	17,910,458	510,549	284,740	1,741,610	964,280	8,710,131	2,045,858	6,925,488	2,652,685
Felt goods.....	15,247	6,670	.....	.....	.....	.....	.....	.....	98,384	42,255

	PRODUCTS—continued.									
	All-wool woven goods, whether woolen or worsted—Continued.								Union or cotton mixed woven goods.	
	Horse blankets.		Carriage robes.		Woven shawls.		Mohair dress goods.		Unions, tweeds, chevots, cassimeres, etc.	
	Square yards.	Value.	Square yards.	Value.	Square yards.	Value.	Square yards.	Value.	Square yards.	Value.
Total.....	740,237	\$418,219	42,187	\$93,727	895,777	\$557,370	268,416	\$163,648	35,103,110	\$15,050,726
Worsted goods.....	5,053	2,767	.....	.....	188,668	56,912	247,000	150,000	3,318,918	1,792,019
Woolen goods.....	735,184	415,452	42,187	93,727	707,109	500,458	21,416	13,648	31,784,192	13,258,707

TABLE 46.—WOOL MANUFACTURES—SUMMARY, BY INDUSTRIES: 1905—Continued.

	PRODUCTS—continued.									
	Union or cotton mixed woven goods—Continued.									
	Overcoatings and cloakings.		Sackings, tricots, etc., and opera and similar flannels.		Flannels for underwear.		Blankets.		Horse blankets.	
	Square yards.	Value.	Square yards.	Value.	Square yards.	Value.	Square yards.	Value.	Square yards.	Value.
Total.....	5,373,053	\$3,353,758	11,690,740	\$4,926,596	7,273,761	\$1,528,928	3,114,110	\$1,198,706	618,800	\$222,543
Worsted goods.....	601,302	305,019	1,709,081	700,244	7,273,761	1,528,928	3,114,110	1,198,706	618,800	222,543
Woolen goods.....	4,771,751	3,048,739	9,981,659	4,226,352						

	PRODUCTS—continued.									
	Union or cotton mixed woven goods—Continued.									
	Goods woven on cotton warps, with weft partly or wholly of wool, worsted, or hair (or cotton weft with warp of wool)—Continued.									
	Carriage robes.		Wool filling cassimeres, doeskins, tweeds, coatings, etc.		Worsted filling cassimeres, doeskins, tweeds, coatings, etc.		Wool filling overcoatings and cloakings.		Satinets and linseys.	
	Square yards.	Value.	Square yards.	Value.	Square yards.	Value.	Square yards.	Value.	Square yards.	Value.
Total.....	23,833	\$7,150	34,602,165	\$10,877,081	16,688,620	\$6,969,402	8,198,406	\$2,478,878	22,343,617	\$4,077,233
Worsted goods.....	23,833	7,150	388,769	285,566	9,968,650	5,549,858				
Woolen goods.....			34,213,396	10,591,515	6,719,970	1,419,544	8,198,406	2,478,878	22,339,112	4,074,800
Felt goods.....									4,505	2,433

	PRODUCTS—continued.									
	Goods woven on cotton warps, with weft partly or wholly of wool, worsted, or hair (or cotton weft with warp of wool)—Continued.									
	Worsted filling dress goods, cassimeres, serges, mohairs, etc.		Wool filling dress goods and repellents.		Domest flannels and shirtings.		Linings, Italian cloths, and lastings.		Cotton warp blankets.	
	Square yards.	Value.	Square yards.	Value.	Square yards.	Value.	Square yards.	Value.	Square yards.	Value.
Total.....	49,300,369	\$12,711,554	12,139,080	\$3,230,561	4,285,838	\$769,476	17,619,325	\$4,505,927	9,340,589	\$2,250,089
Worsted goods.....	48,364,201	12,379,936	184,319	137,575			13,879,521	4,159,997		
Woolen goods.....	936,168	331,618	11,954,761	3,092,986	4,285,838	769,476	3,739,804	345,930	9,267,144	2,218,243
Felt goods.....									73,445	31,846

	PRODUCTS—continued.									
	Goods woven on cotton warps, with weft partly or wholly of wool, worsted, or hair (or cotton weft with warp of wool)—Continued.									
	Horse blankets.		Carriage robes.		Woolen and worsted upholstery goods.		Other upholstery goods (value).		Carpets.	
	Square yards.	Value.	Square yards.	Value.	Square yards.	Value.			Square yards.	Value.
Total.....	6,307,836	\$1,083,154	1,309,166	\$1,139,217	3,233,405	\$1,847,722	\$716,296		30,492,156	\$11,841,732
Worsted goods.....					321,757	383,625	691,196			
Woolen goods.....	6,307,836	1,083,154	1,309,166	1,139,217	738,982	525,312	25,100			
Carpets and rugs.....					2,172,666	938,785			30,492,156	11,841,732

MANUFACTURES.

TABLE 46.—WOOL MANUFACTURES—SUMMARY, BY INDUSTRIES: 1905—Continued.

	PRODUCTS—continued.									
	Carpets and rugs—Continued.									
	Carpets—Continued.									
	Ingrain, 3-ply.		Ingrain, art.		Tapestry Brussels.		Body Brussels.		Tapestry velvet.	
	Square yards.	Value.	Square yards.	Value.	Running yards of 27 inches wide.	Value.	Running yards of 27 inches wide.	Value.	Running yards of 27 inches wide.	Value.
Total.....	3,065,795	\$1,445,570	6,261,035	\$2,290,545	18,798,765	\$9,955,043	4,032,216	\$3,898,675	10,711,051	\$7,754,681
Carpets and rugs.....	3,065,795	1,445,570	6,261,035	2,290,545	18,798,765	9,955,043	4,032,216	3,898,675	10,711,051	7,754,681

	PRODUCTS—continued.									
	Carpets and rugs—Continued.									
	Carpets—Continued.					Rugs.				
	Wilton.		Axminster and Moquette.		Tapestry.		Wilton.		Axminster and Moquette.	
	Running yards of 27 inches wide.	Value.	Running yards of 27 inches wide.	Value.	Square yards.	Value.	Square yards.	Value.	Square yards.	Value.
Total.....	1,730,496	\$2,726,667	8,551,581	\$6,368,757	2,009,834	\$1,509,673	1,097,186	\$1,983,777	1,767,920	\$2,107,383
Carpets and rugs.....	1,730,496	2,726,667	8,551,581	6,368,757	2,009,834	1,509,673	1,097,186	1,983,777	1,767,920	2,107,383

	PRODUCTS—continued.									
	Carpets and rugs—Continued.						Felt goods.			
	Rugs—Continued.									
	Ingrain.		Smyrna carpets and rugs.		Other woolen rugs.		Felt cloths.		Trimming and lining felts, felt skirts, etc.	
	Square yards.	Value.	Square yards.	Value.	Square yards.	Value.	Square yards.	Value.	Square yards.	Value.
Total.....	874,511	\$494,912	3,828,282	\$4,134,500	406,042	\$349,860	3,716,210	\$1,864,127	5,145,340	\$1,188,908
Carpets and rugs.....	874,511	494,912	3,828,282	4,134,500	406,042	349,860	3,689,610	1,830,627	5,145,340	1,188,908
Felt goods.....							26,600	33,500		
Wool hats.....										

	PRODUCTS—continued.									
	Felt goods—Continued.							Wool hats.		
	Endless belts.		Boot and shoe linings.		Hair felting.		All other felts (value).			
	Pounds.	Value.	Square yards.	Value.	Square yards.	Value.		Dozens.	Value.	
	Total.....	1,770,124	\$1,707,216	2,823,137	\$781,450	605,214	\$191,998	\$2,892,567	446,121	\$2,290,070
Woolen goods.....							294,173			
Felt goods.....	1,770,124	1,707,216	2,823,137	781,450	605,214	191,998	2,592,894			
Wool hats.....							5,500	446,121	2,290,070	

TABLE 46.—WOOL MANUFACTURES—SUMMARY, BY INDUSTRIES: 1905—Continued.

	PRODUCTS—continued.									
	Partially manufactured products for sale.									
	Felt hats.		Woolen yarn, all wool.		Worsted yarn and tops.		Woolen yarn, union or merino (cotton mixed).		Worsted yarn, union or merino (cotton mixed).	
	Dozens.	Value.	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.
Total.....	300	\$5,400	43,734,323	\$10,283,017	62,942,798	\$44,490,176	9,433,088	\$2,699,266	3,481,424	\$2,527,308
Worsted goods.....			4,575,159	1,593,529	156,200,867	141,335,042	79,987	25,720	3,314,549	2,460,558
Woolen goods.....			38,303,161	8,400,365	4,046,950	1,662,206	8,744,077	2,512,298		
Carpets and rugs.....			832,500	278,525	2,694,981	1,492,928	609,024	161,248	166,875	66,750
Felt goods.....			23,503	10,598						
Wool hats.....	300	5,400								

	PRODUCTS—continued.											
	Partially manufactured products for sale—Continued.											
	Mohair and similar yarn.		Cotton yarn.		Wool card rolls.		Noils.		Waste.		Shoddy and mungo.	
	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.
Total.....	1,058,748	\$820,357	1,740,312	\$342,438	302,610	\$135,538	16,238,144	\$5,022,907	22,378,230	\$2,652,667	1,733,974	\$246,888
Worsted goods.....	1,058,748	820,357	1,740,312	342,438	301,410	134,938	14,945,135	4,755,323	13,324,937	2,263,828	1,733,974	246,888
Woolen goods.....					1,200	600	434,465	110,653	4,621,139	184,355		
Carpets and rugs.....							858,544	156,931	4,000,904	190,096		
Felt goods.....									342,740	7,747		
Wool hats.....									88,510	6,641		

	PRODUCTS—continued.							POWER.				
	Partially manufactured products for sale—Continued.				All other products (value).	Amount received for contract work (value).	Number of establishments reporting.	Total horse-power.	Owned.			
	Flocks.		Wool hat bodies and hats in the rough.						Engines.			
	Pounds.	Value.	Dozens.	Value.					Steam.		Gas and gasoline.	
							Number.	Horse-power.	Number.	Horse-power.		
Total.....	697,295	\$24,862	31,712	\$205,491	\$5,126,386	\$1,188,933	1,199	316,500	1,560	229,246	43	1,790
Worsted goods.....	15,849	532			1,335,005	444,676	225	130,620	487	95,111	11	347
Woolen goods.....	679,000	23,789			1,888,907	743,861	784	163,793	823	96,940	30	1,358
Carpets and rugs.....					1,438,745	50	135	39,239	166	29,631	2	55
Felt goods.....	2,446	541	13,125	105,000	448,205	206	39	10,936	61	6,149		
Wool hats.....			18,587	100,491	15,524	140	16	1,912	18	1,415		

	POWER—continued.									
	Owned—Continued.					Rented.				Furnished to other establishments.
	Water wheels.		Electric motors.		Other power (horse-power).	Electric.		Other kind.		
	Number.	Horse-power.	Number.	Horse-power.		Number.	Horse-power.	Horse-power.		
Total.....	966	79,354	595	23,586	432	157	4,223	7,899	2,095	
Worsted goods.....	141	16,834	274	11,243	385	70	2,260	4,440	565	
Woolen goods.....	765	55,931	125	5,804	35	31	1,232	2,493	792	
Carpets and rugs.....	25	2,988	181	5,294	12	15	293	966	672	
Felt goods.....	30	3,171	13	1,180		40	436		51	
Wool hats.....	5	430	2	65		1	2		15	

¹ Includes 4,772,582 pounds of worsted tops and slubbing, valued at \$2,855,171.

² Includes 1,018 pounds of worsted tops and slubbing, valued at \$436.

³ Includes 1 water motor with 10 horsepower.

TABLE 47.—WORSTED GOODS—DETAILED SUMMARY, BY STATES: 1905.

	United States.	Connecticut.	Maine.	Massachusetts.	New Hampshire.	New Jersey.	New York.	Pennsylvania.	Rhode Island.	Wisconsin.	All other states. ¹
Number of establishments.....	226	11	6	49	3	15	10	74	50	3	5
Capital, total.....	\$162,464,9.9	\$4,379,180	\$2,562,193	\$59,563,759	\$3,560,636	\$14,382,076	\$9,448,722	\$27,385,436	\$38,789,543	\$528,691	\$1,854,683
Land.....	\$11,766,470	\$90,500	\$34,388	\$6,399,921	\$121,668	\$281,049	\$238,060	\$946,711	\$3,588,035	\$21,608	\$44,790
Buildings.....	\$20,201,406	\$384,536	\$283,283	\$8,121,171	\$40,000	\$2,401,175	\$707,027	\$2,600,385	\$4,558,882	\$67,423	\$347,524
Machinery, tools, and implements.....	\$41,595,093	\$801,455	\$522,266	\$15,532,832	\$736,187	\$4,033,862	\$3,180,782	\$6,621,168	\$9,054,097	\$194,888	\$57,526
Cash and sundries.....	\$88,901,9.0	\$3,102,889	\$1,722,256	\$29,449,835	\$2,272,751	\$7,665,960	\$5,322,923	\$16,617,142	\$21,588,529	\$254,772	\$504,843
Proprietors and firm members.....	188	1	2	40	216	24	20	83	18	.....	.....
Salaries of officials, clerks, etc.:—											
Total number.....	1,847	78	55	451	20	216	146	503	255	11	32
Total salaries.....	\$2,904,900	\$122,534	\$65,772	\$767,016	\$43,666	\$358,961	\$214,797	\$749,175	\$519,158	\$23,160	\$40,221
Officers of corporations—											
Number.....	207	16	6	46	4	20	8	55	42	2	8
Salaries.....	\$712,129	\$44,800	\$11,392	\$166,358	\$13,001	\$80,500	\$7,880	\$207,970	\$156,563	\$7,000	\$16,665
General superintendents, managers, clerks, etc.—											
Total number.....	1,640	62	49	405	26	196	138	448	283	9	24
Total salaries.....	\$2,192,831	\$77,734	\$54,380	\$600,658	\$30,665	\$278,461	\$206,917	\$541,205	\$363,095	\$16,160	\$23,556
Men—											
Number.....	1,479	57	43	346	24	189	129	409	254	7	21
Salaries.....	\$2,108,580	\$75,702	\$51,338	\$570,970	\$29,656	\$275,171	\$201,732	\$521,161	\$345,244	\$15,440	\$21,986
Women—											
Number.....	161	5	6	59	2	7	9	39	29	2	3
Salaries.....	\$84,451	\$2,032	\$3,042	\$29,688	\$1,029	\$3,290	\$5,185	\$20,044	\$17,851	\$720	\$1,570
Wage-earners, including pieceworkers, and total wages:											
Greatest number employed at any one time during the year.....	78,244	1,978	1,793	24,312	2,009	6,380	4,138	16,198	19,947	248	1,241
Least number employed at any one time during the year.....	58,859	1,546	1,556	17,242	1,183	5,491	3,445	11,622	15,671	174	929
Average number.....	69,251	1,811	1,656	21,182	1,599	6,024	3,708	14,029	17,987	209	1,046
Total wages.....	\$26,269,787	\$701,941	\$637,774	\$8,328,564	\$534,959	\$1,857,461	\$1,324,312	\$4,971,543	\$7,542,920	\$70,929	\$299,184
Men 16 years and over—											
Average number.....	29,883	1,176	836	10,105	399	2,083	1,558	4,767	8,654	82	223
Wages.....	\$14,493,965	\$507,622	\$392,941	\$4,827,373	\$162,158	\$935,281	\$675,320	\$2,418,191	\$4,423,374	\$43,798	\$107,907
Women 16 years and over—											
Average number.....	32,130	517	656	9,546	1,124	3,325	1,914	6,837	7,547	110	554
Wages.....	\$10,379,154	\$172,185	\$217,996	\$3,148,040	\$354,182	\$835,121	\$600,371	\$2,098,094	\$2,776,710	\$24,851	\$151,604
Children under 16 years—											
Average number.....	7,238	118	164	1,531	76	616	236	2,425	1,786	17	269
Wages.....	\$1,396,668	\$22,134	\$26,837	\$352,951	\$18,619	\$87,059	\$48,621	\$455,658	\$342,836	\$2,280	\$39,673
Average number of wage-earners, including pieceworkers, employed during each month:											
Men 16 years and over—											
January.....	29,964	1,140	808	10,320	400	2,017	1,590	4,763	8,624	87	215
February.....	29,850	1,138	791	10,301	398	2,060	1,574	4,708	8,584	85	211
March.....	30,202	1,132	837	10,345	400	2,088	1,566	4,709	8,812	92	221
April.....	29,618	1,109	853	9,930	401	2,108	1,560	4,446	8,854	85	212
May.....	29,299	1,192	840	9,829	403	2,070	1,531	4,335	8,801	82	216
June.....	28,760	1,171	846	9,372	399	2,041	1,578	4,497	8,548	88	223
July.....	28,291	1,148	817	9,449	399	2,046	1,294	4,434	8,401	83	220
August.....	28,761	1,144	844	9,620	399	2,091	1,284	4,728	8,347	82	222
September.....	29,942	1,187	872	9,960	396	2,117	1,606	5,017	8,495	74	218
October.....	30,718	1,224	863	10,340	393	2,124	1,648	5,126	8,692	77	231
November.....	31,602	1,226	843	11,039	405	2,128	1,705	5,201	8,740	76	239
December.....	31,589	1,241	818	10,755	395	2,106	1,700	5,240	8,953	73	248
Women 16 years and over—											
January.....	31,648	524	650	9,613	1,129	3,309	1,864	6,726	7,191	121	521
February.....	31,773	510	645	9,573	1,123	3,347	1,837	6,744	7,278	123	523
March.....	32,265	505	655	9,753	1,127	3,356	1,881	6,717	7,597	123	521
April.....	31,866	514	660	9,587	1,131	3,333	1,877	6,472	7,586	121	525
May.....	31,230	517	651	9,236	1,132	3,321	1,854	6,395	7,478	118	528
June.....	30,672	506	657	8,809	1,127	3,256	1,880	6,440	7,273	115	549
July.....	30,613	492	668	8,642	1,126	3,208	1,866	6,428	7,233	107	549
August.....	31,137	494	668	9,085	1,125	3,213	1,868	6,744	7,276	101	563
September.....	32,288	510	677	9,400	1,124	3,303	1,929	7,011	7,680	101	563
October.....	33,590	549	670	10,000	1,117	3,350	1,962	7,347	7,655	97	553
November.....	34,408	539	639	10,255	1,112	3,467	2,016	7,520	8,177	97	586
December.....	34,060	544	638	10,219	1,115	3,347	2,084	7,500	7,850	96	667
Children under 16 years—											
January.....	6,995	114	153	1,513	78	568	231	2,410	1,656	18	254
February.....	7,041	109	154	1,526	77	594	230	2,423	1,657	19	252
March.....	7,102	106	169	1,515	75	590	229	2,408	1,740	19	251
April.....	7,061	111	172	1,499	74	613	231	2,353	1,743	18	247
May.....	6,917	115	161	1,452	74	622	220	2,313	1,691	18	251
June.....	6,872	118	162	1,412	74	593	238	2,317	1,669	17	272
July.....	7,036	121	163	1,455	76	620	244	2,298	1,764	17	278
August.....	7,338	119	159	1,536	76	636	238	2,377	1,706	16	275
September.....	7,465	122	170	1,530	77	658	243	2,418	1,629	16	282
October.....	7,646	125	164	1,614	77	632	240	2,542	1,666	14	272
November.....	7,762	129	175	1,656	76	634	246	2,616	1,921	16	293
December.....	7,621	127	166	1,644	78	632	242	2,625	1,760	16	301
Skilled operatives, average number:											
Spinners—											
Men 16 years and over.....	2,527	37	138	593	14	203	486	696	284	2	74
Women 16 years and over.....	5,693	34	163	1,748	226	370	663	1,583	701	25	180
Children under 16 years.....	2,338	8	103	501	16	233	152	913	220	16	226
Weavers—											
Men 16 years and over.....	9,004	548	294	2,295	83	801	517	1,501	2,887	16	72
Women 16 years and over.....	7,369	60	221	2,333	722	275	617	1,549	1,261	.....	331
Children under 16 years.....	228	11	58	.....	.....	6	13	65	.....	.....	75
Machinery:											
Sets of cards, number.....	1,841	49	10	701	29	125	93	406	364	10	24
Woolen.....	300	33	4	50	.....	8	30	68	101	.....	.....
Worsted.....	1,346	10	6	457	29	117	63	338	292	10	24
Shoddy.....	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Cotton.....	194	.....	.....	154	.....	.....	.....	.....	1	.....	.....
Combing machines, number.....	1,312	10	21	422	14	162	57	314	285	8	19
Of American manufacture.....	259	.....	.....	114	4	13	12	55	48	6	7
Of foreign manufacture.....	1,053	10	21	308	10	149	45	259	237	2	12

¹ Includes establishments distributed as follows: Ohio, 2; Texas, 1; West Virginia, 2.

TABLE 47.—WORSTED GOODS—DETAILED SUMMARY, BY STATES: 1905—Continued.

	United States.	Connecticut.	Maine.	Massachusetts.	New Hampshire.	New Jersey.	New York.	Pennsylvania.	Rhode Island.	Wisconsin.	All other states.
Machinery—Continued.											
Spindles, total number.....	1,618,207	33,460	21,838	498,899	51,044	146,182	109,361	365,718	368,600	5,320	16,885
Producing, number.....	1,216,930	27,576	17,060	376,309	43,424	114,897	79,033	273,644	269,256	3,208	12,523
Mule, number.....	452,997	20,520	1,500	85,620	3,640	68,480	33,439	133,696	105,802		300
Woolen.....	130,335	20,520		16,474		7,680	9,499	34,420	41,742		
Worsted.....	306,662		1,500	53,146	3,640	60,800	23,940	99,276	64,060		300
Cotton.....	16,000			16,000							
Frame, number.....	763,933	7,056	15,560	290,689	39,784	46,417	45,594	139,948	163,454	3,208	12,223
Woolen.....	300	300									
Worsted.....	731,331	6,756	15,560	258,387	39,784	46,417	45,594	139,948	163,454	3,208	12,223
Cotton.....	32,302			32,302							
Doubling and twisting, number.....	401,277	5,884	4,778	122,590	8,520	31,285	30,328	92,074	99,344	2,112	4,362
Woolen.....	9,932	2,324		1,920			1,900	228	3,560		
Worsted.....	386,902	3,560	4,778	116,227	8,520	31,285	28,428	91,846	95,784	2,112	4,362
Cotton.....	4,443			4,443							
Looms on woolen and worsted goods, number.....	30,910	727	875	10,337	2,002	2,493	1,452	5,783	6,808	16	417
Power—											
Broad, 50 inches or over, reed space—											
On woolen goods.....	3,192	67		2,066		70		764	155		
On worsted goods.....	18,694	500	354	4,404	1,002	2,423	1,065	3,240	5,273	16	417
Narrow, under 50 inches, reed space—											
On woolen goods.....	1,442	3		1,094			3	338			
On worsted goods.....	7,568	157	521	2,772	1,000		306	1,437	1,375		
Hand—											
On woolen or worsted goods	14	1		1			8	4			
Pickers, number.....	112	10		32	2	8	5	22	30		3
Garnet machines, number.....	41	5	1	11	2	1	3	4	13	1	
Miscellaneous expenses, total.....	\$8,301,579	\$220,040	\$211,886	\$1,626,340	\$240,215	\$893,573	\$634,663	\$2,066,250	\$2,088,286	\$26,804	\$293,522
Rent of works.....	\$432,728	\$17,550	\$4,045	\$81,043	\$2,100	\$6,740	\$123,048	\$127,580	\$70,622		
Taxes.....	\$500,069	\$13,490	\$5,630	\$239,374	\$23,023	\$25,878	\$25,157	\$31,544	\$128,457	\$1,843	\$5,673
Rent of offices, interest, insurance, and all other sundry expenses not hitherto included.....	\$6,687,346	\$182,671	\$202,211	\$1,241,019	\$215,092	\$794,465	\$486,458	\$1,437,433	\$1,815,187	\$24,961	\$287,849
Contract work.....	\$681,436	\$6,329		\$64,904		\$66,490		\$469,693	\$74,020		
Materials used, aggregate cost.....	\$109,658,481	\$3,096,932	\$2,282,590	\$33,753,591	\$2,469,627	\$7,961,876	\$3,882,942	\$24,090,803	\$30,433,626	\$355,130	\$1,331,364
Principal materials, total cost.....	\$102,155,015	\$2,962,725	\$2,114,081	\$31,103,267	\$2,364,037	\$7,381,197	\$3,606,536	\$22,992,180	\$28,040,062	\$335,631	\$1,255,299
Purchased in raw state.....	\$64,958,627	\$410,088	\$740,226	\$22,065,202	\$2,166,236	\$5,933,434	\$2,912,035	\$15,235,229	\$14,306,683	\$263,913	\$925,581
Purchased in partially manufactured form.....	\$37,196,388	\$2,552,637	\$1,373,855	\$9,038,065	\$197,801	\$1,447,763	\$694,501	\$7,756,951	\$13,733,379	\$71,718	\$329,718
Fuel.....	\$2,101,694	\$62,527	\$68,629	\$737,680	\$51,658	\$152,486	\$85,502	\$336,636	\$571,608	\$11,274	\$23,694
Rent of power and heat.....	\$168,780		\$9,442	\$72,874	\$15,580	\$1,260		\$42,826	\$26,798		
Mill supplies.....	\$1,378,129	\$42,108	\$10,324	\$403,617	\$6,105	\$55,001	\$112,725	\$380,796	\$363,697	\$658	\$3,097
All other materials.....	\$3,371,205	\$8,825	\$55,697	\$1,318,858	\$30,422	\$286,485	\$17,514	\$286,354	\$1,328,684	\$3,913	\$34,053
Freight.....	\$483,658	\$20,747	\$24,417	\$117,295	\$1,424	\$85,447	\$60,665	\$52,011	\$102,777	\$3,654	\$15,221
Products, total value.....	\$165,745,052	\$4,316,534	\$3,609,990	\$51,973,944	\$3,270,498	\$11,925,126	\$7,858,622	\$35,683,015	\$44,477,596	\$491,643	\$2,138,084
Power:											
Number of establishments reporting.....	225	11	6	49	3	15	9	74	50	3	5
Total horsepower.....	130,620	2,160	2,812	46,474	5,628	9,649	10,317	21,590	29,528	343	2,119
Owned—											
Engines—											
Steam—											
Number.....	487	13	5	190	20	25	21	87	115	2	9
Horsepower.....	95,111	1,295	1,527	31,433	2,053	8,555	5,250	19,024	24,360	200	1,414
Gas and gasoline—											
Number.....	11	1	1	4			2	2	1		
Horsepower.....	347	20	15	50			180	72	10		
Water wheels—											
Number.....	141	7	4	53	4	3	14	15	50	1	
Horsepower.....	16,834	750	240	7,641	650	100	3,235	320	3,820	78	
Electric motors—											
Number.....	274	2	9	110	3	11	28	29	42	2	38
Horsepower.....	11,243	95	675	5,278	350	950	1,652	570	903	65	705
Other power, horsepower.....	385							330	55		
Rented—											
Electric motors—											
Number.....	70		7	31	8	3		17	4		
Horsepower.....	2,260		355	863	575	37		200	230		
Other kind, horsepower.....	4,440			1,209	2,000	7		1,074	150		
Furnished to other establishments, horsepower.....	565		100	110				170	185		

* Includes 1 water motor with 10 horsepower.

TABLE 48.—WOOLEN GOODS—DETAILED

	United States.	Arkansas.	California.	Connecticut.	Georgia.
1 Number of establishments.....	792	4	7	48	8
2 Capital, total.....	\$140,302,488	\$28,150	\$961,281	\$10,651,584	\$814,694
3 Land.....	\$10,223,761	\$1,150	\$75,000	\$528,640	\$35,025
4 Buildings.....	\$21,226,953	\$2,750	\$129,696	\$1,722,541	\$128,118
5 Machinery, tools, and implements.....	\$35,090,559	\$16,300	\$295,825	\$2,370,208	\$271,556
6 Cash and sundries.....	\$73,761,215	\$7,950	\$460,760	\$6,030,195	\$379,995
7 Proprietors and firm members.....	729	6	1	38	4
8 Salaried officials, clerks, etc.:.....					
9 Total number.....	2,477		25	202	17
10 Total salaries.....	\$3,430,855		\$33,385	\$293,213	\$21,598
11 Officers of corporations—					
12 Number.....	458		10	50	5
13 Salaries.....	\$1,040,766		\$16,270	\$110,450	\$11,200
14 General superintendents, managers, clerks, etc.—					
15 Total number.....	2,019		15	152	12
16 Total salaries.....	\$2,390,089		\$17,115	\$182,763	\$10,398
17 Men—					
18 Number.....	1,782		13	147	12
19 Salaries.....	\$2,263,495		\$16,280	\$179,973	\$10,398
20 Women—					
21 Number.....	237		2	5	
22 Salaries.....	\$126,594		\$835	\$2,790	
23 Wage-earners, including pieceworkers, and total wages:					
24 Greatest number employed at any one time during the year.....	82,241	35	614	6,231	731
25 Least number employed at any one time during the year.....	62,865	20	230	4,809	633
26 Average number.....	72,747	11	430	5,618	647
27 Total wages.....	\$28,827,556	\$2,947	\$159,400	\$2,296,483	\$129,187
28 Men 16 years and over—					
29 Average number.....	44,452	6	256	3,828	293
30 Wages.....	\$19,850,052	\$1,742	\$104,547	\$1,702,339	\$65,912
31 Women 16 years and over—					
32 Average number.....	24,552	4	168	1,627	247
33 Wages.....	\$8,184,449	\$995	\$53,429	\$556,742	\$49,694
34 Children under 16 years—					
35 Average number.....	3,743	1	6	163	107
36 Wages.....	\$793,055	\$210	\$1,424	\$37,402	\$13,581
37 Average number of wage-earners, including pieceworkers, employed during each month:					
38 Men 16 years and over—					
39 January.....	44,109	12	245	3,880	277
40 February.....	44,281	6	226	3,909	275
41 March.....	44,997	6	275	3,946	276
42 April.....	44,672	6	298	3,893	273
43 May.....	44,891	6	300	3,878	269
44 June.....	43,975	6	286	3,788	271
45 July.....	44,076	5	288	3,750	270
46 August.....	44,011	5	280	3,521	303
47 September.....	44,475	5	260	3,719	301
48 October.....	44,893	5	208	3,921	316
49 November.....	44,592	5	185	3,877	337
50 December.....	44,452	5	221	3,854	348
51 Women 16 years and over—					
52 January.....	24,751	7	194	1,637	242
53 February.....	24,867	1	152	1,658	243
54 March.....	24,967		177	1,663	240
55 April.....	24,711		195	1,623	242
56 May.....	24,909	8	191	1,625	234
57 June.....	24,356	8	183	1,597	237
58 July.....	24,006	8	178	1,565	237
59 August.....	23,936	8	173	1,515	246
60 September.....	24,325	8	148	1,626	252
61 October.....	24,740		135	1,664	261
62 November.....	24,594		139	1,609	262
63 December.....	24,462		151	1,682	268
64 Children under 16 years—					
65 January.....	3,706		9	168	107
66 February.....	3,758		9	166	108
67 March.....	3,773		11	167	108
68 April.....	3,684		10	151	109
69 May.....	3,750	1	7	162	109
70 June.....	3,535	2	8	163	105
71 July.....	3,764	2	5	158	104
72 August.....	3,775	2	2	155	107
73 September.....	3,844	2	2	162	106
74 October.....	3,827	1	4	159	106
75 November.....	3,753	1	2	168	107
76 December.....	3,747	1	3	177	108
77 Skilled operatives, average number:					
78 Spinners—					
79 Men 16 years and over.....	6,736	3	40	495	69
80 Women 16 years and over.....	1,568		9	14	20
81 Children under 16 years.....	1,020		3	7	67
82 Weavers—					
83 Men 16 years and over.....	11,013		43	1,128	73
84 Women 16 years and over.....	12,369	14	103	768	184
85 Children under 16 years.....	231	1		3	
86 Machinery:					
87 Sets of cards, number.....	5,149	10	36	389	47
88 Woolen.....	4,739	10	36	386	31
89 Worsted.....	41				
90 Shoddy.....	138				
91 Cotton.....	231			3	2
92 Combing machines, number.....	128	1	1	8	14
93 Of American manufacture.....	81	1	1	8	1
94 Of foreign manufacture.....	47				
95 Spindles, total number.....	2,129,727	1,200	15,752	148,800	20,064
96 Producing, number.....	2,011,493	1,140	15,006	138,846	19,964
97 Mule, number.....	1,933,786	420	15,006	138,846	19,964
98 Woolen.....	1,902,266	420	15,006	138,846	14,964
99 Worsted.....	7,200				
100 Cotton.....	24,320				5,000
101 Frame, number.....	77,707	720			
102 Woolen.....	28,363	720			
103 Worsted.....	32,368				
104 Cotton.....	16,976				

SUMMARY, BY STATES: 1905.

Illinois.	Indiana.	Iowa.	Kentucky.	Maine.	Maryland.	Massachusetts.	Michigan.	Minnesota.	Missouri.	
0	13	10	21	66	4	131	15	16	5	1
\$1,029,851	\$1,644,517	\$713,225	\$1,935,902	\$14,990,211	\$1,686,684	\$42,537,589	\$767,350	\$633,726	\$511,664	2
\$65,776	\$51,200	\$35,550	\$216,122	\$897,994	\$135,738	\$3,630,643	\$20,600	\$136,125	\$35,600	3
\$96,986	\$275,760	\$93,778	\$296,783	\$2,210,444	\$232,048	\$5,918,608	\$103,672	\$108,100	\$65,013	4
\$292,546	\$535,017	\$199,437	\$612,078	\$3,447,179	\$395,738	\$9,328,163	\$200,298	\$155,175	\$114,908	5
\$574,543	\$782,540	\$384,460	\$810,919	\$8,434,594	\$925,160	\$23,660,175	\$442,780	\$234,328	\$296,143	6
5	10	5	26	34	3	100	20	15	2	7
37	35	17	47	228	38	585	27	28	15	8
\$53,001	\$49,252	\$15,946	\$69,282	\$325,216	\$41,687	\$932,049	\$24,060	\$34,300	\$11,510	9
4	13	6	18	40	4	106	10	3	2	10
\$11,000	\$25,720	\$5,900	\$42,090	\$80,655	\$14,800	\$295,848	\$9,136	\$6,000	\$2,400	11
33	22	11	29	188	34	479	17	25	13	12
\$42,001	\$23,532	\$10,046	\$27,192	\$244,561	\$26,887	\$636,201	\$14,924	\$28,300	\$9,110	13
30	20	10	26	172	30	406	10	25	11	14
\$40,851	\$22,400	\$9,546	\$25,552	\$237,563	\$25,471	\$597,111	\$13,556	\$28,300	\$8,180	15
1	1	1	3	16	4	73	7		2	16
\$1,150	\$1,132	\$500	\$1,640	\$6,998	\$1,416	\$39,090	\$1,368		\$930	17
507	1,161	255	990	8,183	905	24,831	553	368	245	18
308	945	226	801	6,013	802	18,572	410	343	146	19
446	993	246	917	7,087	848	21,969	482	343	160	20
\$162,065	\$305,702	\$89,231	\$261,458	\$2,876,065	\$235,558	\$9,494,489	\$169,676	\$129,137	\$50,740	21
230	401	137	299	4,654	485	14,220	268	180	102	22
\$104,129	\$163,988	\$57,765	\$123,336	\$2,029,697	\$157,828	\$6,635,962	\$112,341	\$75,474	\$37,415	23
212	571	109	483	2,283	246	6,883	212	161	58	24
\$57,327	\$138,426	\$31,466	\$114,398	\$797,750	\$61,726	\$2,609,940	\$56,849	\$53,097	\$13,325	25
4	21		135	150	117	866	2	2		26
\$100	\$3,288		\$23,724	\$48,618	\$16,004	\$248,587	\$486	\$566		27
226	394	123	280	4,561	507	13,732	283	154	120	28
226	398	129	279	4,632	495	13,672	282	171	118	29
226	408	133	284	4,735	487	13,952	272	176	128	30
225	421	140	296	4,769	487	14,282	256	180	133	31
214	433	138	315	4,702	482	14,261	265	182	115	32
212	420	139	316	4,496	479	14,311	270	185	118	33
227	409	150	319	4,513	486	14,079	257	189	116	34
230	414	147	322	4,625	473	14,280	266	189	107	35
242	420	144	314	4,708	473	14,600	270	187	90	36
245	412	135	302	4,772	473	14,777	265	185	20	37
247	345	137	285	4,687	486	14,463	265	185	18	38
240	338	129	276	4,648	492	14,231	265	177	141	39
210	570	104	487	2,262	254	6,898	203	134	61	40
215	570	108	487	2,308	247	6,839	207	160	69	41
217	585	106	488	2,342	253	6,850	204	160	70	42
204	601	113	498	2,316	246	6,869	206	162	68	43
203	633	116	500	2,307	242	6,895	202	166	69	44
205	624	121	505	2,285	244	6,896	208	165	70	45
199	576	117	497	2,215	253	6,652	215	166	67	46
207	592	109	497	2,201	245	6,687	226	164	65	47
217	607	107	479	2,261	242	6,916	226	164	56	48
222	609	104	474	2,342	241	7,073	222	164	6	49
221	450	104	452	2,291	241	7,080	212	164	5	50
224	435	99	426	2,266	244	6,941	213	163	98	51
1	21		137	139	129	826	1	1		52
5	20		139	165	126	835		1		53
4	22		142	154	123	838		2		54
4	19		147	162	123	853		2		55
4	20		143	149	114	885	2	2		56
3	22		139	149	118	866	2	2		57
5	23		135	154	118	882	3	2		58
5	21		135	131	115	880	2	2		59
5	23		135	153	105	879	2	3		60
3	23		135	148	108	892	2	3		61
2	20		123	150	108	874	5	3		62
2	18		110	146	117	882	5	1		63
20	25	25	53	513	156	1,763	53	35	10	64
39	126	16	58	93	24	100	16	3	16	65
	5		43	61	81	71			1	66
88	62	71	32	1,300	132	3,212	55	24	36	67
52	284	54	342	1,066	134	3,917	78	93	30	68
			44		9	60				69
88	107	28	88	483	48	1,396	42	34	14	70
33	73	28	76	439	48	1,293	42	34	14	71
						10				72
5	4		7	1		23				73
	30		5	43		70				74
	2	5	1	5		28		1		75
		5	1			22		1		76
						6				77
14,258	40,676	9,397	33,636	185,468	24,524	564,126	19,448	8,719	4,868	78
13,158	39,849	9,014	33,132	169,038	22,486	541,564	17,316	8,201	4,784	79
13,158	39,849	9,014	33,132	155,822	19,702	527,004	17,316	8,057	4,784	80
13,158	33,349	9,014	33,132	155,822	19,702	520,304	17,316	8,057	4,784	81
										82
	6,500					6,700				83
				13,216	2,784	14,560		144		84
				10,152		5,152		144		85
						9,408				86
				3,064	2,784					87

TABLE 48.—WOOLEN GOODS—DETAILED

	New Hampshire.	New Jersey.	New York.	North Carolina.	Ohio.
1 Number of establishments.....	41	16	41	12	23
2 Capital, total.....	\$10,850,596	\$3,669,760	\$6,213,044	\$418,733	\$1,707,826
3 Land.....	\$1,090,333	\$171,650	\$322,275	\$43,267	\$133,637
4 Buildings.....	\$1,640,003	\$682,438	\$925,585	\$76,618	\$356,742
5 Machinery, tools, and implements.....	\$2,996,171	\$1,014,338	\$1,329,268	\$137,834	\$438,164
6 Cash and sundries.....	\$5,124,089	\$1,801,334	\$3,635,916	\$161,014	\$779,283
7 Proprietors and firm members.....	32	13	41	15	34
8 Salaried officials, clerks, etc.:.....					
9 Total number.....	177	52	160	23	41
10 Total salaries.....	\$213,706	\$81,387	\$241,258	\$21,040	\$54,342
11 Officers of corporations—					
12 Number.....	23	9	25	6	16
13 Salaries.....	\$37,868	\$24,432	\$98,151	\$8,025	\$26,890
14 General superintendents, managers, clerks, etc.—					
15 Total number.....	154	43	135	17	25
16 Total salaries.....	\$175,838	\$56,955	\$143,107	\$13,015	\$27,452
17 Men—					
18 Number.....	129	41	98	15	24
19 Salaries.....	\$162,592	\$56,360	\$115,260	\$12,215	\$26,852
20 Women—					
21 Number.....	25	2	37	2	1
22 Salaries.....	\$13,246	\$595	\$27,847	\$800	\$600
23 Wage-earners, including pieceworkers and total wages:					
24 Greatest number employed at any one time during the year.....	5,643	3,097	3,838	420	813
25 Least number employed at any one time during the year.....	4,810	2,608	2,900	351	600
26 Average number.....	4,982	2,676	3,473	343	722
27 Total wages.....	\$2,220,103	\$970,704	\$1,422,969	\$70,813	\$236,794
28 Men 16 years and over—					
29 Average number.....	3,344	1,476	2,127	167	326
30 Wages.....	\$1,634,420	\$603,380	\$970,405	\$43,145	\$131,074
31 Women 16 years and over—					
32 Average number.....	1,531	1,043	1,259	150	377
33 Wages.....	\$561,789	\$342,372	\$434,637	\$24,556	\$102,741
34 Children under 16 years—					
35 Average number.....	107	157	87	26	19
36 Wages.....	\$23,894	\$24,952	\$17,927	\$3,112	\$2,979
37 Average number of wage-earners, including pieceworkers, employed during each month:					
38 Men 16 years and over—					
39 January.....	3,522	1,680	2,132	116	321
40 February.....	3,537	1,685	2,170	116	326
41 March.....	3,577	1,609	2,166	171	340
42 April.....	3,560	1,510	2,148	170	337
43 May.....	3,513	1,474	2,114	171	341
44 June.....	3,364	1,397	2,142	170	346
45 July.....	3,316	1,390	2,030	183	329
46 August.....	3,077	1,397	2,106	182	330
47 September.....	2,994	1,383	2,128	185	313
48 October.....	3,044	1,388	2,141	185	308
49 November.....	3,231	1,396	2,117	179	308
50 December.....	3,393	1,403	2,130	176	313
51 Women 16 years and over—					
52 January.....	1,615	1,198	1,253	132	376
53 February.....	1,648	1,195	1,279	133	378
54 March.....	1,656	1,155	1,281	155	386
55 April.....	1,652	1,118	1,287	152	382
56 May.....	1,620	1,071	1,281	153	383
57 June.....	1,577	959	1,283	149	380
58 July.....	1,531	963	1,113	160	377
59 August.....	1,376	958	1,274	162	377
60 September.....	1,369	964	1,281	159	364
61 October.....	1,382	969	1,281	151	372
62 November.....	1,448	977	1,251	152	373
63 December.....	1,498	989	1,244	142	373
64 Children under 16 years—					
65 January.....	99	162	91	24	13
66 February.....	97	161	92	24	13
67 March.....	100	160	93	23	13
68 April.....	104	159	91	24	13
69 May.....	106	158	86	24	13
70 June.....	103	158	86	22	13
71 July.....	103	165	89	33	23
72 August.....	104	165	87	33	22
73 September.....	114	159	83	34	20
74 October.....	111	149	84	34	18
75 November.....	120	145	83	24	18
76 December.....	123	143	79	24	19
77 Skilled operatives, average number:					
78 Spinners—					
79 Men 16 years and over.....	474	226	307	31	74
80 Women 16 years and over.....	69	141	41	6	45
81 Children under 16 years.....	3	71	7	6	2
82 Weavers—					
83 Men 16 years and over.....	871	497	446	32	57
84 Women 16 years and over.....	798	426	507	110	219
85 Children under 16 years.....	6	6	3	4	2
86 Machinery:					
87 Sets of cards, number.....	393	138	258	37	57
88 Woolen.....	376	115	241	25	57
89 Worsted.....	17	20	11	12	12
90 Shoddy.....	10	4	5	3	3
91 Cotton.....	10	4	5	3	3
92 Combing machines, number.....	10	4	5	3	3
93 Of American manufacture.....	10	4	5	3	3
94 Of foreign manufacture.....	10	4	5	3	3
95 Spindles, total number.....	183,030	70,416	95,840	9,509	19,324
96 Producing, number.....	178,630	66,396	90,503	8,779	18,592
97 Mule, number.....	176,370	56,596	83,271	7,124	18,352
98 Woolen.....	176,370	56,596	82,951	7,124	18,352
99 Worsted.....					
100 Cotton.....					
101 Frame, number.....	2,260	9,800	7,232	1,655	240
102 Woolen.....	2,260	6,000	7,232	655	240
103 Worsted.....		3,800	7,232		
104 Cotton.....				1,000	

¹ Includes establishments distributed as follows: Alabama, 1; Delaware, 2; Idaho, 1; Kansas, 2; Mississippi, 1; North Dakota, 1; Texas, 1; Washington, 1.

Oregon.	Pennsylvania.	Rhode Island.	Tennessee.	Utah.	Vermont.	Virginia.	West Virginia.	Wisconsin.	All other states. ¹	
7	144	32	27	3	17	24	12	26	10	1
\$1,271,982	\$16,998,765	\$6,810,265	\$2,309,772	\$446,915	\$5,659,649	\$1,046,094	\$425,611	\$1,807,341	\$1,759,707	1
\$67,397	\$869,374	\$687,726	\$44,595	\$25,250	\$643,356	\$47,250	\$16,880	\$107,430	\$88,178	3
\$131,044	\$2,342,603	\$960,780	\$838,962	\$67,500	\$931,995	\$181,264	\$38,119	\$251,512	\$367,491	4
\$324,545	\$4,831,197	\$2,047,355	\$492,238	\$94,500	\$1,624,856	\$307,901	\$127,807	\$452,578	\$637,379	5
\$748,996	\$8,955,591	\$3,114,404	\$933,977	\$259,665	\$2,459,442	\$509,679	\$192,805	\$995,821	\$666,659	6
3	186	26	22	1	17	23	13	27	4	7
25	295	111	44	9	98	29	21	53	38	8
\$42,605	\$362,402	\$134,754	\$54,350	\$8,240	\$152,600	\$28,537	\$24,190	\$60,448	\$46,437	9
5	38	13	14	1	10	11	11	10	7	10
\$15,600	\$72,304	\$22,936	\$30,700	\$1,800	\$21,600	\$7,300	\$11,500	\$14,100	\$16,091	11
20	257	98	30	8	88	25	15	43	31	12
\$27,005	\$290,158	\$111,818	\$23,650	\$6,440	\$131,000	\$21,237	\$12,690	\$46,348	\$30,346	13
18	233	91	28	7	80	25	15	38	28	14
\$25,625	\$278,764	\$108,391	\$23,130	\$5,900	\$126,268	\$21,237	\$12,690	\$44,284	\$28,746	15
2	24	7	2	1	1	1	1	5	3	16
\$1,360	\$11,394	\$3,427	\$520	\$540	\$4,732	-----	-----	\$2,064	\$1,600	17
641	10,796	4,001	1,718	299	2,539	699	325	1,029	744	18
533	8,049	2,989	1,293	279	1,914	537	256	811	581	19
566	9,674	3,623	1,415	284	2,235	649	290	928	690	20
\$219,742	\$3,604,199	\$1,559,559	\$327,202	\$89,254	\$922,825	\$179,242	\$105,944	\$310,450	\$225,618	21
311	5,334	2,436	507	139	1,565	357	203	467	334	22
\$150,788	\$2,374,188	\$1,129,347	\$160,017	\$54,100	\$689,135	\$118,254	\$85,001	\$192,765	\$141,558	23
216	3,302	1,077	564	119	624	238	80	415	293	24
\$63,078	\$1,021,068	\$408,717	\$116,664	\$31,191	\$223,662	\$53,638	\$19,846	\$109,793	\$75,533	25
39	1,038	110	344	26	46	54	7	46	63	26
\$5,876	\$208,943	\$21,495	\$50,521	\$3,963	\$10,028	\$7,350	\$1,097	\$7,892	\$8,527	27
325	5,441	2,384	476	126	1,457	365	189	434	347	28
298	5,499	2,434	474	126	1,456	367	189	434	352	29
303	5,555	2,475	485	126	1,514	372	205	443	352	30
317	4,974	2,434	478	140	1,548	376	205	477	339	31
324	5,558	2,334	489	144	1,528	376	200	476	289	32
325	4,960	2,386	499	146	1,586	342	208	482	325	33
325	5,358	2,428	513	146	1,648	338	204	481	329	34
307	5,251	2,508	522	147	1,638	352	208	495	329	35
346	5,280	2,464	525	148	1,604	342	208	481	341	36
305	5,385	2,470	535	148	1,575	342	208	482	340	37
299	5,388	2,475	544	145	1,629					

TABLE 48.—WOOLEN GOODS—DETAILED

	United States.	Arkansas.	California.	Connecticut.	Georgia.
Machinery—Continued.					
Spindles—Continued.					
88 Doubling and twisting, number.....	118,234	60	746	9,954	100
89 Woolen.....	98,546	60	746	9,954	100
90 Worsted.....	15,408				
91 Cotton.....	4,280				
92 Looms on woolen and worsted goods, number.....	32,957	24	205	2,474	546
Power—					
93 Broad, 50 inches or over, reed space—					
On woolen goods.....	23,071	4	203	1,879	70
94 On worsted goods.....	901			135	
Narrow, under 50 inches, reed space—					
95 On woolen goods.....	8,630	19	2	451	476
96 On worsted goods.....	303	1		9	
Hand—					
97 On woolen or worsted goods.....	52				
98 Pickers, number.....	1,529	6	24	112	8
99 Garnet machines, number.....	177		11	11	2
100 Miscellaneous expenses, total.....	\$8,218,766	\$475	\$109,146	\$565,872	\$35,868
101 Rent of works.....	\$288,640		\$1,460	\$21,150	\$460
102 Taxes.....	\$646,223	\$155	\$4,745	\$41,168	\$2,680
103 Rent of offices, interest, insurance, and all other sundry expenses not hitherto included.	\$6,873,819	\$220	\$90,691	\$483,361	\$32,528
104 Contract work.....	\$410,084	\$100	\$12,250	\$20,193	
105 Materials used, aggregate cost.....	\$87,830,825	\$13,887	\$467,011	\$6,976,287	\$424,211
106 Principal materials, total cost.....	\$79,682,116	\$12,912	\$415,671	\$6,401,377	\$395,549
107 Purchased in raw state.....	\$47,875,088	\$11,185	\$341,238	\$3,662,173	\$227,111
108 Purchased in partially manufactured form.....	\$31,807,028	\$1,727	\$74,433	\$2,739,204	\$168,438
109 Fuel.....	\$2,662,161	\$650	\$10,862	\$241,605	\$12,126
110 Rent of power and heat.....	\$74,181	\$180	\$7,329	\$600	\$1,000
111 Mill supplies.....	\$1,319,706	\$70	\$8,372	\$123,822	\$9,690
112 All other materials.....	\$3,193,664	\$75	\$18,519	\$110,293	\$925
113 Freight.....	\$898,997		\$6,258	\$98,590	\$4,921
114 Products, total value.....	\$142,196,658	\$20,245	\$754,190	\$11,166,965	\$655,998
Power:					
115 Number of establishments reporting.....	784	4	7	48	8
116 Total horsepower.....	163,793	93	1,025	13,289	1,181
Owned—					
Engines—					
117 Steam—					
Number.....	828	2	14	58	5
118 Horsepower.....	96,940	59	945	7,141	863
Gas and gasoline—					
119 Number.....	30			2	
120 Horsepower.....	1,358			45	
Water wheels—					
121 Number.....	765			76	4
122 Horsepower.....	55,931			5,688	168
Electric motors—					
123 Number.....	125			7	
124 Horsepower.....	5,804			405	
125 Other power, horsepower.....	35				
Rented—					
Electric motors—					
126 Number.....	31		5		
127 Horsepower.....	1,232		80		
128 Other kind, horsepower.....	2,493	34		10	150
129 Furnished to other establishments, horsepower.....	792			5	

SUMMARY, BY STATES: 1905—Continued.

Illinois.	Indiana.	Iowa.	Kentucky.	Maine.	Maryland.	Massachusetts.	Michigan.	Minnesota.	Missouri.	
1,100	827	383	504	16,430	2,038	22,562	2,132	518	84	88
1,100	827	383	504	16,430	2,038	17,066	2,132	518	84	89
						3,696				90
						1,800				91
130	539	100	986	2,746	225	10,251	157	119	65	92
122	286	141	320	2,577	221	6,995	138	117	93	93
4	1					269				94
4	252	19	666	30	4	2,980	19	2	3	95
				139		7				96
17	26	10	29	133	7	345	10	16	7	97
	2	1	1	15	1	23	2	1	1	98
\$50,294	\$117,586	\$33,664	\$131,375	\$1,015,149	\$70,016	\$2,249,956	\$83,997	\$51,923	\$18,685	100
\$2,660	\$360	84		\$4,700		\$84,267	\$4,000	\$800		101
\$4,841	\$9,009	\$2,595	\$6,408	\$70,444	\$9,905	\$254,665	\$7,056	\$4,743	\$1,167	102
\$42,793	\$108,217	\$31,006	\$124,967	\$933,370	\$60,111	\$1,633,176	\$72,941	\$45,814	\$17,518	103
				\$6,635		\$277,848		\$566		104
\$495,291	\$997,267	\$364,568	\$774,987	\$8,528,645	\$743,224	\$27,043,506	\$594,593	\$462,672	\$175,155	105
\$467,939	\$939,596	\$312,653	\$720,216	\$7,678,260	\$636,996	\$24,237,406	\$518,426	\$427,321	\$161,359	106
\$320,609	\$808,397	\$277,658	\$412,454	\$5,173,090	\$544,253	\$12,764,572	\$469,997	\$382,434	\$114,622	107
\$147,330	\$131,199	\$41,995	\$307,762	\$2,505,170	\$92,743	\$11,472,834	\$48,429	\$44,887	\$46,737	108
\$15,413	\$34,791	\$18,260	\$30,086	\$306,223	\$19,824	\$897,671	\$33,133	\$12,998	\$5,176	109
\$2,461	\$300		\$95	\$7,854		\$2,983	\$360	\$2,542		110
\$2,976	\$6,905	\$2,748	\$13,508	\$130,648	\$3,620	\$463,539	\$5,242	\$440	\$491	111
\$2,542	\$11,988	\$19,918	\$1,045	\$273,932	\$73,701	\$1,217,338	\$33,161	\$18,478	\$3,635	112
\$3,960	\$3,687	\$3,989	\$10,037	\$131,728	\$9,083	\$229,569	\$4,271	\$893	\$4,494	113
\$783,306	\$1,597,197	\$572,936	\$1,273,241	\$13,969,600	\$1,119,971	\$44,653,940	\$977,493	\$791,224	\$265,292	114
■	13	10	20	66	4	131	15	16	5	115
1,150	1,992	1,102	2,201	16,444	2,210	48,381	1,286	941	332	116
9	14	9	22	54	5	207	16	8	6	117
845	1,660	800	1,963	5,170	575	30,071	1,067	400	245	118
				1		4	2	2		119
				35		130	27	32		120
2	3	■	2	111	10	185	3	8	3	121
175	160	301	13	10,109	1,435	14,494	57	176	82	122
	5	2	4	■	6	46	5		1	123
	47	1	185	355	200	3,486	100		5	124
	35									125
1	2			11		1	1			126
20	90			775		50	35			127
110			40			150		333		128
30						135	6			129

TABLE 48.—WOOLEN GOODS—DETAILED

	New Hampshire.	New Jersey.	New York.	North Carolina.	Ohio.
Machinery—Continued.					
Spindles—Continued.					
88 Doubling and twisting, number	4,400	4,020	5,337	730	732
89 Woolen	4,400	2,420	5,337	730	732
90 Worsted		1,600			
91 Cotton					
92 Looms on woolen and worsted goods, number	2,395	1,306	1,336	235	301
Power—					
93 Broad, 50 inches or over, reed space—					
94 On woolen goods	2,196	972	1,075	118	253
On worsted goods		54	40		2
Narrow, under 50 inches, reed space—					
95 On woolen goods	199	280	178	117	40
96 On worsted goods					
Hand—					
97 On woolen or worsted goods			43		
98 Pickers, number	125	56	65	12	34
99 Garnet machines, number	15	1	11	2	
100 Miscellaneous expenses, total	\$556,738	\$242,295	\$585,608	\$24,433	\$170,391
101 Rent of works	\$6,870	\$8,264	\$13,645	\$200	
102 Taxes	\$44,243	\$19,340	\$23,740	\$2,647	\$10,591
103 Rent of offices, interest, insurance, and all other sundry expenses not hitherto included.	\$497,522	\$214,691	\$548,223	\$21,586	\$158,900
104 Contract work	\$8,103				\$900
105 Materials used, aggregate cost	\$7,009,271	\$2,088,628	\$4,319,422	\$405,677	\$836,887
106 Principal materials, total cost	\$6,301,578	\$1,833,056	\$3,949,897	\$373,990	\$768,598
107 Purchased in raw state	\$3,661,796	\$829,319	\$2,665,474	\$305,618	\$414,058
108 Purchased in partially manufactured form	\$2,639,782	\$1,003,737	\$1,284,423	\$68,372	\$354,540
109 Fuel	\$184,263	\$85,702	\$112,283	\$11,671	\$24,222
110 Rent of power and heat	\$2,535	\$9,500	\$414	\$1,501	
111 Mill supplies	\$53,277	\$77,012	\$77,423	\$6,983	\$19,473
112 All other materials	\$402,803	\$55,285	\$117,416	\$5,559	\$14,328
113 Freight	\$64,815	\$28,073	\$61,989	\$5,973	\$10,266
114 Products, total value	\$11,013,982	\$3,577,674	\$7,384,755	\$556,245	\$1,382,874
Power:					
115 Number of establishments reporting	41	16	38	12	23
116 Total horsepower	13,365	4,768	8,427	849	1,842
Owned—					
Engines—					
117 Steam—					
118 Number	36	25	37	10	24
Horsepower	4,772	4,148	3,825	470	1,473
Gas and gasoline—					
119 Number	5			1	1
120 Horsepower	430			75	15
Water wheels—					
121 Number	90	7	53	8	14
122 Horsepower	7,620	465	4,467	204	354
Electric motors—					
123 Number	8		3		
124 Horsepower	206		100		
125 Other power, horsepower					
Rented—					
Electric motors—					
126 Number	8		3	1	
127 Horsepower	7		35	85	
128 Other kind, horsepower	330	155		15	
129 Furnished to other establishments, horsepower	250	15	25		

SUMMARY, BY STATES: 1905—Continued.

Oregon.	Pennsylvania.	Rhode Island.	Tennessee.	Utah.	Vermont.	Virginia.	West Virginia.	Wisconsin.	All other states.	
1,092	26,103	10,622	586	290	480	1,146	857	2,728	1,673	88
1,092	16,073	10,314	286	290	480	1,146	57	2,374	873	89
	8,650	308						354	800	90
	1,880		300							91
159	4,059	1,295	1,078	82	905	293		281	397	92
158	2,390	875	278	75	728	238	112	261	207	93
	76	152					10		158	94
1	1,443	265	800	7	237	55	24	19	32	95
	143	3						1		96
	7						2			97
17	252	64	27	3	37	32	15	31	9	98
1	49	11	6	1	11	1		4	2	99
\$122,853	\$943,243	\$375,517	\$147,334	\$23,564	\$188,379	\$49,285	\$22,435	\$153,203	\$79,482	100
\$2,400	\$97,010	\$28,545	\$236	\$100	\$7,175	\$450	\$45	\$1,240	\$2,600	101
\$6,388	\$34,676	\$27,819	\$12,013	\$2,735	\$13,487	\$5,989	\$1,795	\$9,985	\$10,994	102
\$114,065	\$783,125	\$281,604	\$135,085	\$20,729	\$150,438	\$42,846	\$20,595	\$141,749	\$65,888	103
	\$28,432	\$37,549			\$17,279			\$229		104
\$406,338	\$12,563,521	\$5,502,606	\$945,483	\$170,220	\$2,794,111	\$759,520	\$218,370	\$1,045,281	\$609,186	105
\$476,260	\$11,793,030	\$4,978,982	\$898,555	\$157,703	\$2,403,179	\$727,702	\$208,611	\$935,225	\$543,069	106
\$383,936	\$7,462,880	\$3,025,315	\$594,880	\$118,188	\$1,103,693	\$531,948	\$125,530	\$726,186	\$410,474	107
\$92,324	\$4,330,150	\$1,953,667	\$303,675	\$39,515	\$1,293,486	\$195,754	\$83,081	\$209,039	\$132,595	108
\$11,821	\$229,269	\$136,220	\$19,220	\$9,806	\$115,337	\$13,015	\$8,026	\$37,980	\$24,508	109
\$400	\$28,077	\$5,850		\$50			\$25	\$125		110
\$730	\$157,324	\$85,301	\$8,239	\$1,250	\$25,204	\$3,750	\$1,311	\$13,968	\$16,300	111
\$2,956	\$251,388	\$251,245	\$12,344	\$1,345	\$226,936	\$10,170	\$200	\$46,209	\$9,930	112
\$4,171	\$104,433	\$45,008	\$7,125	\$66	\$23,455	\$4,883	\$197	\$11,774	\$15,289	113
\$1,034,356	\$19,222,465	\$8,163,167	\$1,706,396	\$268,340	\$4,698,405	\$1,249,786	\$469,447	\$1,805,983	\$1,061,185	114
7	142	32	26	■	17	24	12	26	■	115
955	17,914	7,357	2,843	623	7,133	1,666	726	2,198	1,500	116
2	132	40	22	3	16	13	8	20	11	117
135	15,181	5,363	2,348	285	3,505	732	650	969	1,280	118
	8	1				2		1		119
	209	40				270		50		120
8	36	44	8	5	28	18	5	19	7	121
785	1,026	1,888	242	288	3,615	654	76	1,169	220	122
	17	1	8	1	1	1				123
	387	1	253	50	13	10				124
										125
	1	2								126
	20	35								127
35	1,091	30						10		128
	274	52								129

TABLE 49.—CARPETS AND RUGS, OTHER THAN RAG—DETAILED SUMMARY, BY STATES: 1905.

	United States.	Connecticut.	Massachu- setts.	New Jersey.	New York.	Pennsylva- nia.	All other states. ¹
Number of establishments.....	139	3	10	8	12	102	4
Capital, total.....	\$56,781,074	\$4,304,158	\$7,904,650	\$2,097,815	\$19,830,452	\$22,284,077	\$359,922
Land.....	\$3,153,804	\$623,060	\$533,324	\$48,050	\$939,313	\$993,457	\$16,600
Buildings.....	\$8,696,950	\$914,042	\$1,705,509	\$411,411	\$2,171,009	\$3,425,831	\$69,148
Machinery, tools, and implements.....	\$15,129,294	\$1,575,831	\$1,731,174	\$431,084	\$4,640,617	\$6,647,465	\$103,123
Cash and sundries.....	\$29,801,026	\$1,191,225	\$3,934,643	\$1,207,270	\$12,079,513	\$11,217,324	\$171,051
Proprietors and firm members.....	149	.....	2	3	8	136	.....
Salaries of officials, clerks, etc.:—							
Total number.....	1,023	103	86	47	269	504	14
Total salaries.....	\$1,396,691	\$171,979	\$141,216	\$89,972	\$327,509	\$652,089	\$13,926
Officers of corporations—							
Number.....	78	7	7	13	17	31	3
Salaries.....	\$349,350	\$47,700	\$35,330	\$57,410	\$79,600	\$123,310	\$6,000
General superintendents, managers, clerks, etc.—							
Total number.....	945	96	79	34	252	473	11
Total salaries.....	\$1,047,341	\$124,279	\$105,886	\$32,562	\$247,909	\$528,779	\$7,926
Men—							
Number.....	837	80	70	31	239	408	9
Salaries.....	\$999,419	\$117,365	\$101,399	\$31,263	\$240,681	\$501,145	\$7,566
Women—							
Number.....	108	16	9	3	13	65	2
Salaries.....	\$47,922	\$6,914	\$4,487	\$1,299	\$7,228	\$27,634	\$360
Wage-earners, including pieceworkers, and total wages:							
Greatest number employed at any one time during the year.....	36,472	2,112	5,568	1,442	12,096	14,884	370
Least number employed at any one time during the year.....	28,875	1,096	4,655	1,070	10,225	11,594	235
Average number.....	33,221	1,815	5,179	1,153	11,077	13,716	281
Total wages.....	\$13,724,233	\$657,462	\$2,187,767	\$417,548	\$4,567,481	\$5,829,135	\$64,840
Men 16 years and over—							
Average number.....	16,930	867	2,383	781	5,354	7,410	135
Wages.....	\$8,271,441	\$360,539	\$1,217,320	\$322,272	\$2,649,558	\$3,677,056	\$44,296
Women 16 years and over—							
Average number.....	14,408	846	2,395	357	5,417	5,266	127
Wages.....	\$5,084,201	\$270,845	\$876,442	\$92,846	\$1,857,120	\$1,968,154	\$18,794
Children under 16 years—							
Average number.....	1,883	102	401	15	306	1,040	19
Wages.....	\$368,591	\$26,078	\$94,005	\$2,430	\$60,403	\$183,925	\$1,750
Average number of wage-earners, including pieceworkers, employed during each month:							
Men 16 years and over—							
January.....	17,597	757	2,458	912	5,501	7,795	174
February.....	17,623	757	2,465	900	5,522	7,846	133
March.....	17,478	756	2,387	865	5,543	7,784	143
April.....	17,511	807	2,436	852	5,639	7,634	143
May.....	17,294	856	2,380	876	5,555	7,458	169
June.....	17,100	856	2,376	853	5,418	7,455	142
July.....	16,549	855	2,299	735	5,221	7,388	51
August.....	16,125	907	2,315	726	5,125	7,002	50
September.....	15,969	931	2,388	766	5,128	6,624	132
October.....	16,336	956	2,354	716	5,119	7,043	148
November.....	16,594	980	2,326	541	5,289	7,291	167
December.....	16,984	986	2,412	630	5,188	7,600	168
Women 16 years and over—							
January.....	14,847	727	2,460	411	5,507	5,573	169
February.....	14,904	727	2,471	413	5,578	5,583	132
March.....	14,937	798	2,416	383	5,649	5,540	151
April.....	14,837	798	2,465	387	5,704	5,360	123
May.....	14,779	821	2,400	410	5,724	5,280	144
June.....	14,687	875	2,409	415	5,530	5,315	143
July.....	14,003	867	2,287	332	5,201	5,236	80
August.....	13,918	903	2,336	330	5,205	5,067	77
September.....	13,779	873	2,396	352	5,221	4,833	104
October.....	13,883	913	2,382	342	5,222	4,897	127
November.....	13,914	917	2,321	232	5,253	5,052	139
December.....	14,408	933	2,397	277	5,210	5,456	135
Children under 16 years—							
January.....	2,053	81	410	19	471	1,050	22
February.....	1,987	82	411	19	406	1,050	19
March.....	1,951	95	400	18	370	1,048	20
April.....	1,876	92	410	19	318	1,016	21
May.....	1,885	96	400	18	330	1,019	22
June.....	1,864	100	400	19	269	1,056	20
July.....	1,832	96	402	11	262	1,052	9
August.....	1,813	104	395	11	248	1,046	9
September.....	1,822	103	399	13	252	1,034	21
October.....	1,801	108	392	16	250	1,014	21
November.....	1,827	131	389	8	247	1,031	21
December.....	1,885	136	404	9	249	1,064	23
Skilled operatives, average number:							
Spinners—							
Men 16 years and over.....	531	34	54	4	173	260	6
Women 16 years and over.....	936	99	132	10	224	471	.....
Children under 16 years.....	154	.....	15	.....	14	125	.....
Weavers—							
Men 16 years and over.....	7,055	230	532	638	1,137	4,419	99
Women 16 years and over.....	5,050	273	707	138	1,644	2,218	70
Children under 16 years.....	49	.....	3	.....	.....	44	2
Machinery:							
Sets of cards, number.....	686	81	197	10	303	95	.....
Woolen.....	386	48	77	5	180	76	.....
Worsted.....	238	33	90	5	91	19	.....
Shoddy.....	3	.....	.....	.....	.....	.....	.....
Cotton.....	59	.....	27	.....	32	.....	.....
Combing machines, number.....	109	19	47	3	12	28	.....
Of American manufacture.....	46	3	22	3	9	9	.....
Of foreign manufacture.....	63	16	25	.....	3	19	.....
Spindles, total number.....	255,347	25,221	55,524	3,888	121,380	49,334	.....
Producing, number.....	211,331	21,559	42,464	3,240	104,450	39,618	.....
Mule, woolen, number.....	90,695	7,355	12,156	1,224	52,942	17,018	.....
Frame, number.....	120,636	14,204	30,308	2,016	51,508	22,600	.....
Worsted.....	112,044	14,204	28,436	2,016	44,788	22,600	.....
Cotton.....	8,592	.....	1,872	.....	6,720	.....	.....

¹ Includes establishments distributed as follows: Alabama, 1; Georgia, 1; Indiana, 1; North Carolina, 1.

TABLE 49.—CARPETS AND RUGS, OTHER THAN RAG—DETAILED SUMMARY, BY STATES: 1905—Continued.

	United States.	Connecticut.	Massachusetts.	New Jersey.	New York.	Pennsylvania.	All other states.
Machinery—Continued.							
Spindles—Continued.							
Doubling and twisting, number.....	44,016	3,662	13,060	648	16,930	9,716	.....
Woolen.....	1,788	142	1,090	.....	540	16	.....
Worsted.....	38,728	3,520	11,382	648	13,478	9,700	.....
Cotton.....	3,500	.....	588	.....	2,912	.....	.....
Looms on woolen and worsted goods, number.....	2,161	.....	.....	.....	1,257	904	.....
Power—							
Broad, 50 inches or over, reed space—							
On woolen goods.....	678	.....	.....	.....	2	676	.....
On worsted goods.....	127	.....	.....	.....	52	75	.....
Narrow, under 50 inches, reed space—							
On woolen goods.....	826	.....	.....	.....	673	153	.....
On worsted goods.....	530	.....	.....	.....	530	.....	.....
Looms on carpets and rugs, number.....	11,692	559	1,367	977	2,729	5,827	233
Ingrain—							
Power.....	4,189	200	253	12	150	3,436	138
Hand.....	82	.....	.....	2	56	24	.....
Broad ingrain—							
Power.....	412	17	.....	50	11	327	7
Hand.....	42	.....	.....	.....	.....	42	.....
Venetian—							
Power.....	88	.....	.....	.....	.....	88	.....
Hand.....	3	.....	.....	.....	.....	3	.....
Tapestry Brussels, power.....	1,207	80	114	.....	570	443	.....
Tapestry velvet, power.....	1,047	10	64	61	479	433	.....
Body Brussels, power.....	549	80	273	.....	65	131	.....
Wilton, power.....	639	35	374	.....	63	167	.....
Axminster, power.....	1,306	137	205	.....	919	45	.....
Moquette, power.....	127	.....	.....	.....	127	.....	.....
Wilton rug, power.....	71	.....	8	4	.....	59	.....
Tapestry rug, power.....	236	.....	76	.....	83	77	.....
Smyna rug—							
Power.....	1,131	.....	.....	445	197	409	80
Hand.....	563	.....	.....	403	9	143	8
Pickers, number.....	79	5	23	2	26	23	.....
Garnet machines, number.....	18	4	9	.....	3	2	.....
Miscellaneous expenses, total.....	\$4,162,146	\$183,048	\$367,452	\$83,825	\$1,904,307	\$1,599,678	\$23,836
Rent of works.....	\$91,026	.....	\$3,446	.....	\$5,793	\$81,787	.....
Taxes.....	\$334,060	\$17,267	\$106,642	\$5,467	\$147,268	\$56,790	\$626
Rent of offices, interest, insurance, and all other sundry expenses not hitherto included.....	\$3,612,946	\$165,781	\$257,364	\$78,358	\$1,751,246	\$1,342,769	\$17,428
Contract work.....	\$124,114	.....	.....	.....	.....	\$118,332	\$5,782
Materials used, aggregate cost.....	\$37,947,954	\$2,169,773	\$6,702,615	\$978,856	\$11,133,063	\$16,706,431	\$257,216
Principal materials, total cost.....	\$35,871,513	\$2,024,869	\$6,092,961	\$924,129	\$10,584,288	\$16,005,751	\$239,515
Purchased in raw state.....	\$11,275,846	\$1,313,367	\$2,899,393	\$109,465	\$4,954,338	\$1,999,283	.....
Purchased in partially manufactured form.....	\$24,595,667	\$711,502	\$3,193,568	\$814,664	\$5,629,950	\$14,006,468	\$239,515
Fuel.....	\$714,929	\$72,473	\$171,398	\$23,908	\$224,235	\$216,654	\$6,261
Rent of power and heat.....	\$32,673	.....	\$2,445	.....	.....	\$28,438	\$1,800
Mill supplies.....	\$402,349	\$25,448	\$124,428	\$2,199	\$114,550	\$133,632	\$2,092
All other materials.....	\$825,216	\$46,983	\$295,805	\$27,170	\$169,023	\$281,826	\$4,349
Freight.....	\$101,274	.....	\$15,328	\$1,450	\$40,967	\$40,130	\$3,199
Products, total value.....	\$61,586,433	\$3,221,346	\$9,713,978	\$1,748,831	\$19,404,133	\$27,120,311	\$377,834
Power:							
Number of establishments reporting.....	135	3	10	8	12	98	4
Total horsepower.....	39,239	4,910	8,918	1,448	10,869	12,724	370
Owned—							
Engines—							
Steam—							
Number.....	166	4	29	11	30	87	5
Horsepower.....	29,631	2,410	6,449	963	8,961	10,553	295
Gas and gasoline—							
Number.....	2	.....	.....	1	.....	1	.....
Horsepower.....	55	.....	.....	5	.....	50	.....
Water wheels—							
Number.....	25	.....	9	3	10	3	.....
Horsepower.....	2,988	.....	1,323	300	1,190	175	.....
Electric motors—							
Number.....	181	58	34	7	20	62	.....
Horsepower.....	5,294	2,500	1,043	180	718	853	.....
Other power, horsepower.....	12	.....	.....	.....	.....	12	.....
Rented—							
Electric motors—							
Number.....	15	.....	7	.....	.....	7	1
Horsepower.....	293	.....	103	.....	.....	115	75
Other kind, horsepower.....	966	.....	.....	.....	.....	966	.....
Furnished to other establishments, horsepower.....	672	.....	460	.....	.....	212	.....

TABLE 50.—FELT GOODS—DETAILED SUMMARY, BY STATES: 1905.

	United States.	Massachu- setts.	New York.	Pennsyl- vania.	All other states. ¹
Number of establishments.....	39	10	12	5	17
Capital, total.....	\$9,667,136	\$2,155,527	\$4,021,651	\$348,532	\$3,141,426
Land.....	\$531,582	\$133,190	\$218,775	\$28,900	\$150,717
Buildings.....	\$1,865,762	\$342,242	\$807,887	\$111,397	\$604,236
Machinery, tools, and implements.....	\$2,143,294	\$383,883	\$922,658	\$106,326	\$730,427
Cash and sundries.....	\$5,126,498	\$1,296,212	\$2,072,331	\$101,909	\$1,656,046
Proprietors and firm members.....	18	1	9	4	4
Salaries.....					
Salaried officials, clerks, etc.:.....					
Total number.....	201	37	80	13	71
Total salaries.....	\$350,594	\$60,032	\$160,017	\$25,228	\$105,317
Officers of corporations—					
Number.....	45	3	19	4	19
Salaries.....	\$135,044	\$6,000	\$71,444	\$14,400	\$43,200
General superintendents, managers, clerks, etc.—					
Total number.....	156	34	61	9	52
Total salaries.....	\$215,550	\$54,032	\$88,573	\$10,828	\$62,117
Men—					
Number.....	126	28	49	8	41
Salaries.....	\$200,014	\$50,432	\$82,300	\$10,228	\$57,054
Women—					
Number.....	30	6	12	1	11
Salaries.....	\$15,536	\$3,600	\$6,273	\$600	\$5,063
Wage-earners, including pieceworkers, and total wages:					
Greatest number employed at any one time during the year.....	3,744	1,097	1,229	146	1,272
Least number employed at any one time during the year.....	2,829	716	1,011	60	1,042
Average number.....	3,254	899	1,117	129	1,109
Total wages.....	\$1,356,754	\$313,836	\$490,755	\$60,277	\$491,886
Men 16 years and over—					
Average number.....	2,546	800	847	125	774
Wages.....	\$1,135,013	\$283,851	\$402,584	\$59,077	\$389,501
Women 16 years and over—					
Average number.....	699	95	269	4	331
Wages.....	\$219,147	\$28,550	\$87,941	\$1,200	\$101,456
Children under 16 years—					
Average number.....	9	4	1	—	4
Wages.....	\$2,594	\$1,435	\$230	—	\$929
Average number of wage-earners, including pieceworkers, employed during each month:					
Men 16 years and over—					
January.....	2,351	670	846	119	716
February.....	2,369	701	836	124	708
March.....	2,446	738	846	127	735
April.....	2,426	743	836	128	719
May.....	2,445	742	853	125	725
June.....	2,699	944	880	122	753
July.....	2,716	951	846	114	805
August.....	2,723	935	851	123	814
September.....	2,728	932	851	127	818
October.....	2,607	785	843	131	848
November.....	2,559	764	838	132	825
December.....	2,483	695	838	128	822
Women 16 years and over—					
January.....	688	94	284	4	308
February.....	703	94	287	4	318
March.....	702	97	283	4	318
April.....	711	97	289	4	321
May.....	703	98	284	4	317
June.....	685	96	268	4	317
July.....	693	93	254	4	342
August.....	688	92	255	4	337
September.....	700	96	254	4	346
October.....	700	97	250	4	349
November.....	708	93	259	4	352
December.....	707	95	261	4	347
Children under 16 years—					
January.....	10	6	1	—	3
February.....	10	6	1	—	3
March.....	10	6	1	—	3
April.....	10	5	1	—	4
May.....	10	5	1	—	4
June.....	9	3	1	—	5
July.....	9	3	1	—	5
August.....	8	2	1	—	5
September.....	8	3	1	—	4
October.....	8	3	1	—	4
November.....	8	3	1	—	4
December.....	8	3	1	—	4
Skilled operatives, average number:					
Spinners—					
Men 16 years and over.....	69	14	26	4	25
Women 16 years and over.....	5	—	—	—	5
Weavers—					
Men 16 years and over.....	91	14	53	—	24
Women 16 years and over.....	115	—	31	4	80
Machinery					
Sets of cards, number.....					
Woolen.....	466	190	108	20	129
Worsted.....	419	184	102	20	113
Shoddy.....	3	—	—	—	3
Cotton.....	32	15	6	—	11
Spindles, total number.....	12	—	—	—	12
Producing mule, woolen, number.....	17,817	—	8,091	208	9,518
Doubling and twisting, woolen, number.....	17,457	—	7,951	208	9,298
Looms on woolen and worsted goods, number.....	360	—	140	—	220
Power—	265	—	111	6	148
Broad, 50 inches or over, reed space—					
On woolen goods.....	230	—	84	4	142
Narrow, under 50 inches, reed space—					
On woolen goods.....	35	—	27	2	6
Pickers, number.....	72	24	15	9	24
Garnet machines, number.....	9	—	4	—	5
Formers for felt hats, number.....	10	—	10	—	—

¹Includes establishments distributed as follows: California, 1; Connecticut, 1; Illinois, 1; Indiana, 1; Maine, 2; Michigan, 1; New Jersey, 2; Ohio, 2; Wisconsin, 1.

TABLE 50.—FELT GOODS—DETAILED SUMMARY, BY STATES: 1905—Continued.

	United States.	Massachu- setts.	New York.	Pennsyl- vania.	All other states.
Miscellaneous expenses, total.....	\$612,766	\$119,881	\$287,270	\$22,762	\$182,853
Rent of works.....	\$8,270	\$4,613	.....	.....	\$3,657
Taxes.....	\$38,566	\$11,819	\$11,148	\$2,060	\$10,539
Rent of offices, interest, insurance, and all other sundry expenses not hitherto included..	\$566,501	\$101,020	\$276,122	\$20,702	\$168,657
Contract work.....	\$2,429	\$2,429	.....	.....	.....
Materials used, aggregate cost.....	\$5,754,028	\$1,975,491	\$1,928,974	\$186,974	\$1,662,587
Principal materials, total cost.....	\$5,352,585	\$1,887,048	\$1,806,305	\$171,803	\$1,487,459
Purchased in raw state.....	\$3,979,585	\$1,327,490	\$1,382,786	\$136,866	\$1,132,443
Purchased in partially manufactured form.....	\$1,373,000	\$559,558	\$423,519	\$34,937	\$354,986
Fuel.....	\$171,666	\$48,110	\$63,143	\$10,761	\$49,652
Rent of power and heat.....	\$2,335	\$22	\$111	.....	\$2,202
Mill supplies.....	\$54,110	\$6,310	\$28,157	\$1,164	\$18,479
All other materials.....	\$97,082	\$5,410	\$7,618	\$2,800	\$81,254
Freight.....	\$76,248	\$28,591	\$23,640	\$446	\$23,571
Products, total value.....	\$8,948,594	\$2,686,011	\$3,178,768	\$370,342	\$2,713,473
Power:					
Number of establishments reporting.....	39	10	12	5	12
Total horsepower.....	10,936	2,830	4,764	520	2,822
Owned—					
Engines—					
Steam—					
Number.....	61	12	33	6	10
Horsepower.....	6,149	1,455	2,639	490	1,565
Water wheels—					
Number.....	30	11	7	3	9
Horsepower.....	3,171	1,350	1,110	30	681
Electric motors—					
Number.....	13	1	4	.....	8
Horsepower.....	1,180	25	1,000	.....	155
Rented—					
Electric motors—					
Number.....	40	.....	2	.....	38
Horsepower.....	436	.....	15	.....	421
Furnished to other establishments, horsepower.....	51	.....	.....	45	6

TABLE 51.—WOOL HATS—DETAILED SUMMARY, BY STATES: 1905.

	United States.	New York.	Pennsylvania.	All other states. ¹
Number of establishments.....	17	4	9	4
Capital, total.....	\$1,646,064	\$833,066	\$460,653	\$352,345
Land.....	\$70,000	\$27,000	\$30,000	\$13,000
Buildings.....	\$241,280	\$153,780	\$43,500	\$44,000
Machinery, tools, and implements.....	\$247,083	\$142,453	\$50,800	\$53,830
Cash and sundries.....	\$1,087,701	\$509,833	\$336,353	\$241,515
Proprietors and firm members.....	23	4	18	1
Salaried officials, clerks, etc.:.....				
Total number.....	68	33	14	21
Total salaries.....	\$94,245	\$52,332	\$13,806	\$28,107
Officers of corporations—				
Number.....	4	2	—	2
Salaries.....	\$13,600	\$10,000	—	\$3,600
General superintendents, managers, clerks, etc.—				
Total number.....	64	31	14	19
Total salaries.....	\$80,645	\$42,332	\$13,806	\$24,507
Men—				
Number.....	57	29	12	16
Salaries.....	\$76,445	\$41,064	\$13,026	\$22,355
Women—				
Number.....	7	2	2	3
Salaries.....	\$4,200	\$1,268	\$780	\$2,152
Wage-earners, including pieceworkers, and total wages:				
Greatest number employed at any one time during the year.....	2,253	947	671	635
Least number employed at any one time during the year.....	1,050	455	283	312
Average number.....	1,503	644	419	440
Total wages.....	\$619,194	\$281,939	\$154,982	\$182,273
Men 16 years and over—				
Average number.....	1,030	439	286	305
Wages.....	\$487,013	\$226,424	\$121,985	\$138,604
Women 16 years and over—				
Average number.....	433	196	108	129
Wages.....	\$125,957	\$54,306	\$28,762	\$42,889
Children under 16 years—				
Average number.....	40	9	25	6
Wages.....	\$6,224	\$1,209	\$4,235	\$780
Average number of wage-earners, including pieceworkers, employed during each month:				
Men 16 years and over—				
January.....	759	294	204	261
February.....	802	331	213	258
March.....	860	345	250	265
April.....	935	409	257	269
May.....	1,031	430	314	287
June.....	1,140	489	383	268
July.....	1,279	578	398	303
August.....	1,313	575	420	318
September.....	1,282	550	380	352
October.....	1,240	552	262	426
November.....	1,042	430	205	407
December.....	677	285	146	246
Women 16 years and over—				
January.....	312	133	62	117
February.....	340	158	67	115
March.....	358	157	83	118
April.....	371	160	97	114
May.....	431	182	125	124
June.....	471	203	162	106
July.....	622	300	170	152
August.....	602	296	157	149
September.....	615	277	171	167
October.....	453	202	97	154
November.....	332	154	56	122
December.....	289	130	49	110
Children under 16 years—				
January.....	21	1	14	0
February.....	21	1	14	6
March.....	26	3	17	6
April.....	35	6	23	6
May.....	42	10	26	0
June.....	55	13	36	0
July.....	73	26	41	6
August.....	64	20	38	6
September.....	63	19	38	0
October.....	36	6	24	6
November.....	23	2	15	6
December.....	21	1	14	0
Machinery:				
Sets of woolen cards, number.....	124	62	40	22
Pickers, number.....	20	7	10	3
Formers for felt hats, number.....	4	4	—	—
Miscellaneous expenses, total.....	\$293,208	\$157,101	\$26,455	\$109,652
Rent of works.....	\$11,693	\$5,933	\$1,500	\$4,260
Taxes.....	\$8,875	\$3,721	\$1,100	\$4,054
Rent of offices, interest, insurance, and all other sundry expenses not hitherto included.....	\$269,995	\$146,497	\$23,855	\$99,643
Contract work.....	\$2,645	\$950	—	\$1,695
Materials used, total cost.....	\$1,369,810	\$583,886	\$405,457	\$380,467
Wool—				
Foreign, in condition purchased—				
Pounds.....	106,517	81,517	25,000	—
Cost.....	\$30,867	\$18,367	\$12,500	—
Domestic, in condition purchased—				
Pounds.....	1,527,008	731,440	279,614	515,954
Cost.....	\$464,727	\$176,688	\$126,037	\$163,002
Foreign and domestic, scoured, pounds.....	1,231,576	441,345	304,614	485,617
Animal hair and fur—				
Mohair—				
Domestic—				
Pounds.....	72,750	45,649	26,197	904
Cost.....	\$30,683	\$20,148	\$10,180	\$355
Turkish and other foreign—				
Pounds.....	93,897	8,760	85,137	—
Cost.....	\$41,575	\$3,363	\$38,212	—
Hatters' fur—				
Pounds.....	43,380	7,880	—	35,500
Cost.....	\$56,593	\$28,200	—	\$28,333

¹ Includes establishments distributed as follows: Massachusetts, 2; New Jersey, 2.

TABLE 51.—WOOL HATS—DETAILED SUMMARY, BY STATES: 1905—Continued.

	United States.	New York.	Pennsylvania.	All other states.
Materials used—Continued.				
Materials purchased in partially manufactured form—				
Shoddy—				
Pounds.....	32,667	26,000	6,667	.....
Cost.....	\$3,467	\$1,800	\$1,667	.....
Wool waste and noils—				
Pounds.....	287,363	224,067	36,666	26,630
Cost.....	\$119,407	\$97,025	\$11,333	\$11,049
Mohair noils—				
Pounds.....	290			290
Cost.....	\$105			\$105
Tops—				
Pounds.....	135			135
Cost.....	\$73			\$73
Wool hat bodies and hats in the rough—				
Dozens.....	12,089	500	528	11,061
Cost.....	\$25,997	\$500	\$1,060	\$24,437
All other materials which are components of the product.....	\$364,602	\$133,662	\$133,497	\$97,443
Soap—				
Pounds.....	49,482	10,390	31,660	7,432
Cost.....	\$5,344	\$3,336	\$1,668	\$340
Oil for preparing wool for cards and combs—				
Gallons.....	1,158	808	350	.....
Cost.....	\$429	\$242	\$187	.....
Chemicals and dyestuffs.....	\$63,905	\$24,950	\$26,793	\$12,162
Fuel.....	\$46,967	\$23,815	\$12,694	\$10,458
Rent of power and heat.....	\$120	\$120	.....	.....
Mill supplies.....	\$13,200	\$11,505	\$1,359	\$336
All other materials.....	\$79,949	\$33,357	\$20,505	\$26,087
Freight.....	\$21,800	\$7,748	\$7,765	\$6,287
Shoddy made in mill for use therein, pounds.....	500	.....	500	.....
Products, total value.....	\$2,457,266	\$1,054,541	\$658,428	\$744,297
Felt goods—				
Felt cloths—				
Square yards.....	26,600	26,600	.....	.....
Value.....	\$33,500	\$33,500	.....	.....
All other felts.....	\$5,500	\$5,500	.....	.....
Hats—				
Wool—				
Dozens.....	446,121	136,481	158,585	151,055
Value.....	\$2,290,070	\$956,347	\$647,064	\$686,659
Felt—				
Dozens.....	300	.....	.....	300
Value.....	\$5,400	.....	.....	\$5,400
Partially manufactured products for sale—				
Waste—				
Pounds.....	88,510	56,030	1,000	31,480
Value.....	\$6,641	\$5,603	\$300	\$738
Wool hat bodies and hats in the rough—				
Dozens.....	18,587	9,087	5,000	4,500
Value.....	\$100,491	\$45,491	\$10,000	\$45,000
Felt hat bodies and hats in the rough—				
Dozens.....	500	.....	.....	500
Value.....	\$6,500	.....	.....	\$6,500
All other products.....	\$9,024	\$8,100	\$924	.....
Amount received for contract work.....	\$140	.....	\$140	.....
Power:				
Number of establishments reporting.....	16	4	8	4
Total horsepower.....	1,912	1,047	615	250
Owned—				
Engines—				
Steam—				
Number.....	18	6	8	4
Horsepower.....	1,415	595	570	250
Water wheels—				
Number.....	5	3	2	.....
Horsepower.....	430	385	45	.....
Electric motors—				
Number.....	2	2	.....	.....
Horsepower.....	65	65	.....	.....
Rented—				
Electric motors—				
Number.....	1	1	.....	.....
Horsepower.....	2	2	.....	.....
Furnished to other establishments, horsepower.....	15	.....	15	.....

TABLE 52.—FELT HATS—DETAILED SUMMARY, BY STATES: 1905.

	United States.	California.	Connecticut.	Illinois.	Massachusetts.	New Jersey.	New York.	Pennsylvania.	All other states. ¹
Number of establishments.....	216	3	56	5	6	63	43	25	15
Capital, total.....	\$23,258,104	\$32,975	\$3,351,884	\$45,050	\$1,845,307	\$4,331,313	\$4,441,470	\$8,777,678	\$432,427
Land.....	\$1,958,611		\$100,345	\$4,000	\$136,570	\$250,792	\$351,044	\$1,111,860	\$4,000
Buildings.....	\$2,887,309		\$383,535	\$6,000	\$446,419	\$676,102	\$464,634	\$907,519	\$3,100
Machinery, tools, and implements.....	\$5,318,675	\$5,575	\$864,028	\$10,100	\$534,397	\$638,619	\$863,392	\$2,312,567	\$89,997
Cash and sundries.....	\$13,093,509	\$27,400	\$2,003,976	\$24,950	\$727,921	\$2,765,800	\$2,762,400	\$4,445,732	\$335,330
Proprietors and firm members.....	252	2	57	4	9	81	52	29	18
Salaried officials, clerks, etc.: Total number.....	1,367	4	449	8	69	292	235	283	27
Total salaries.....	\$1,488,236	\$7,000	\$426,510	\$6,908	\$92,817	\$318,144	\$263,889	\$346,058	\$26,910
Officers of corporations— Number.....	85	1	26	1		27	11	14	5
Salaries.....	\$248,531	\$3,000	\$60,254	\$750		\$61,075	\$22,230	\$91,172	\$10,050
General superintendents, managers, clerks, etc.: Total number.....	1,282	2	422	7	69	265	224	269	22
Total salaries.....	\$1,239,705	\$4,000	\$366,256	\$6,158	\$92,817	\$257,069	\$241,659	\$254,886	\$16,860
Men— Number.....	1,083	3	375	5	56	223	183	222	16
Salaries.....	\$1,136,542	\$4,000	\$341,177	\$5,222	\$86,555	\$234,857	\$216,797	\$233,474	\$14,460
Women— Number.....	199		48	2	13	42	41	47	6
Salaries.....	\$103,163		\$25,079	\$936	\$6,262	\$22,212	\$24,862	\$21,412	\$2,400
Wage-earners, including pieceworkers, and total wages: Greatest number employed at any one time during the year.....	24,345	28	5,918	43	1,753	5,870	5,180	4,932	621
Least number employed at any one time during the year.....	19,692	14	4,540	30	1,532	5,230	3,701	4,240	405
Average number.....	22,047	23	5,158	37	1,586	5,705	4,397	4,619	522
Total wages.....	\$11,282,237	\$15,280	\$2,696,091	\$24,244	\$626,824	\$3,275,888	\$2,309,061	\$2,122,085	\$212,764
Men 16 years and over— Average number.....	15,432	12	3,560	17	937	4,391	2,981	3,192	342
Wages.....	\$9,166,347	\$10,260	\$2,193,256	\$16,760	\$417,315	\$2,798,177	\$1,807,690	\$1,761,146	\$161,743
Women 16 years and over— Average number.....	6,166	11	1,584	20	612	1,289	1,377	1,094	179
Wages.....	\$2,035,685	\$5,020	\$499,295	\$7,484	\$202,021	\$472,523	\$493,291	\$305,198	\$50,853
Children under 16 years— Average number.....	449		14		37	25	39	333	1
Wages.....	\$80,205		\$3,540		\$7,488	\$5,188	\$8,080	\$55,741	\$168
Average number of wage-earners, including pieceworkers, employed during each month:									
Men 16 years and over— January.....	15,495	7	3,573	14	973	4,483	2,979	3,096	370
February.....	15,542	9	3,605	15	977	4,328	3,139	3,120	340
March.....	15,495	14	3,574	16	1,008	4,375	3,066	3,103	339
April.....	14,727	16	3,165	18	984	4,253	2,904	3,077	310
May.....	14,565	15	3,247	18	877	4,155	2,860	3,071	322
June.....	14,793	15	3,307	20	893	4,208	2,917	3,108	325
July.....	15,369	11	3,758	18	905	4,251	2,907	3,196	323
August.....	15,534	9	3,873	19	911	4,310	2,820	3,236	356
September.....	16,054	12	3,997	19	939	4,555	2,879	3,301	352
October.....	15,924	12	3,593	19	930	4,599	3,083	3,332	356
November.....	15,932	12	3,563	14	922	4,598	3,139	3,332	352
December.....	15,754	12	3,465	14	925	4,577	3,079	3,332	350
Women 16 years and over— January.....	6,299	9	1,656	19	606	1,297	1,390	1,088	234
February.....	6,386	9	1,688	20	615	1,301	1,421	1,100	232
March.....	6,347	13	1,679	20	629	1,307	1,393	1,102	204
April.....	5,977	13	1,419	21	620	1,283	1,339	1,094	188
May.....	5,890	13	1,449	21	582	1,254	1,339	1,072	160
June.....	5,887	13	1,439	21	581	1,238	1,385	1,069	141
July.....	6,213	11	1,701	19	624	1,228	1,398	1,097	135
August.....	6,256	11	1,750	21	628	1,264	1,328	1,091	163
September.....	6,315	10	1,742	21	634	1,310	1,335	1,098	165
October.....	6,136	10	1,496	21	629	1,321	1,390	1,102	167
November.....	6,099	10	1,491	18	595	1,336	1,377	1,107	165
December.....	6,187	10	1,498	18	601	1,329	1,429	1,108	194
Children under 16 years— January.....	423		10		34	25	38	315	1
February.....	427		17		33	26	35	315	1
March.....	436		17		38	27	37	316	1
April.....	416		12		36	22	32	313	1
May.....	424		13		35	22	33	320	1
June.....	444		16		36	22	36	333	1
July.....	462		20		37	27	53	324	1
August.....	470		17		39	27	52	334	1
September.....	471		14		40	27	41	348	1
October.....	464		13		40	25	48	347	1
November.....	479		11		39	25	36	367	1
December.....	472		8		37	25	37	364	1
Machinery: Sets of woolen cards, number.....	6								
Pickers, number.....	35								
Formers for felt hats, number.....	579	300	30		2	3	79	46	15
Miscellaneous expenses, total.....	\$2,831,197	\$2,539	\$408,246	\$5,242	\$272,019	\$576,951	\$912,359	\$595,077	\$58,764
Rent of works.....	\$147,563	\$1,780	\$29,745	\$3,230	\$2,205	\$39,945	\$43,178	\$8,220	\$19,260
Taxes.....	\$65,342	\$159	\$13,227	\$187	\$7,693	\$12,774	\$13,701	\$15,751	\$1,850
Rent of offices, interest, insurance, and all other sundry expenses not hitherto included.....	\$2,458,499	\$600	\$325,492	\$1,825	\$262,121	\$445,140	\$827,905	\$557,962	\$37,454
Contract work.....	\$159,793		\$39,782			\$79,092	\$27,575	\$13,144	\$200
Materials used, total cost.....	\$15,975,206	\$30,458	\$3,953,693	\$54,472	\$1,124,957	\$4,227,235	\$3,478,454	\$2,728,895	\$377,042
Wool— Domestic, in condition purchased— Pounds.....	44,000								
Cost.....	\$15,336							\$44,000	
Domestic, scoured, pounds.....	44,000							\$15,336	
Animal hair and fur— Mohair— Pounds.....	10,000								
Cost.....	\$3,500							\$10,000	
Hatters' fur— Pounds.....	6,718,359		1,385,325		547,484	1,880,510	1,563,680	1,227,951	113,409
Cost.....	\$6,743,936		\$1,535,579		\$527,510	\$2,022,347	\$1,265,877	\$1,307,816	\$84,807

¹ Includes establishments distributed as follows: Delaware, 1; Indiana, 1; Iowa, 1; Maine, 1; Minnesota, 2; Missouri, 2; Montana, 1; New Hampshire, 1; Ohio, 2; Rhode Island, 1; Texas, 1; West Virginia, 1.

TABLE 52.—FELT HATS—DETAILED SUMMARY, BY STATES: 1905—Continued.

	United States.	California.	Connecticut.	Illinois.	Massachusetts.	New Jersey.	New York.	Pennsylvania.	All other states.
Materials used—Continued.									
Materials purchased in partially manufactured form—									
Tailors' clippings, rags, etc.—									
Pounds.....	10,000								10,000
Cost.....	\$1,200								\$1,200
Shoddy—									
Pounds.....	333					333			
Cost.....	\$30					\$30			
Wool waste and noils—									
Pounds.....	6,600							6,600	
Cost.....	\$1,000							\$1,000	
Wool hat bodies and hats in the rough—									
Dozens.....	179					179			
Cost.....	\$323					\$323			
Felt hat bodies and hats in the rough—									
Dozens.....	211,700	2,320	30,783	6,640	3,289	40,992	92,984	23,512	11,240
Cost.....	\$1,351,372	\$22,850	\$194,207	\$40,068	\$18,250	\$209,289	\$627,040	\$156,420	\$83,248
All other materials which are components of the product.....	\$4,301,749	\$5,750	\$1,104,620	\$12,912	\$415,051	\$1,150,163	\$1,027,897	\$494,405	\$90,951
Soap—									
Pounds.....	2,000							2,000	
Cost.....	\$120							\$120	
Oil for preparing wool for cards or combs—									
Gallons.....	60							60	
Cost.....	\$25							\$25	
Chemicals and dyestuffs.....	\$1,140,281		\$501,640		\$47,379	\$331,723	\$160,305	\$72,931	\$26,803
Fuel.....	\$531,346	\$398	\$159,823	\$310	\$23,901	\$152,782	\$94,329	\$31,380	\$18,423
Rent of power and heat.....	\$23,212		\$2,925	\$682	\$210	\$6,995	\$10,675	\$1,205	\$520
Mill supplies.....	\$48,107	\$10	\$7,806	\$20	\$1,047	\$10,065	\$6,281	\$15,270	\$1,548
All other materials.....	\$1,720,245	\$1,450	\$415,252	\$110	\$74,352	\$221,779	\$276,348	\$565,993	\$64,901
Freight.....	\$93,424		\$31,741	\$350	\$17,257	\$15,739	\$9,702	\$13,494	\$5,141
Products, total value.....	\$36,629,353	\$74,000	\$8,662,799	\$105,918	\$2,315,591	\$9,540,433	\$7,739,774	\$7,350,311	\$840,527
Hats—									
Wool—									
Dozens.....	18,179					179		18,000	
Value.....	\$49,847					\$3,977		\$45,870	
Felt—									
Dozens.....	2,611,875	2,320	600,312		234,792	676,906	631,374	413,506	52,665
Value.....	\$34,314,234	\$71,500	\$8,198,376		\$2,311,091	\$8,905,436	\$6,852,797	\$7,270,067	\$704,967
Partially manufactured products for sale—									
Waste—									
Pounds.....	34,500					9,500	25,000		
Value.....	\$6,000					\$4,000	\$2,000		
Felt hat bodies and hats in the rough—									
Dozens.....	88,986		63,676	6,640		15,825			2,845
Value.....	\$660,959		\$396,056	\$98,138		\$154,816			\$11,949
Wool hat bodies and hats in the rough—									
Dozens.....	2,430							2,430	
Value.....	\$4,690							\$4,690	
All other products.....	\$1,032,824		\$17,755	\$5,000	\$4,500	\$46,967	\$857,559	\$800	\$100,243
Amount received for contract work.....	\$560,799	\$2,500	\$50,612	\$2,780		\$426,237	\$27,418	\$28,884	\$23,368
Power:									
Number of establishments reporting.....	165	1	45	4	6	54	28	19	8
Total horsepower.....	18,695	8	3,829	14	1,295	5,631	3,537	3,913	568
Owned—									
Engines—									
Steam—									
Number.....	203	1	46		7	62	54	26	7
Horsepower.....	15,871	8	3,617		1,145	4,631	3,326	2,699	445
Gas and gasoline—									
Number.....	5					2		2	1
Horsepower.....	48					27		19	2
Water wheels—									
Number.....	3		1		1			1	
Horsepower.....	65		25		30			10	
Water motors—									
Number.....	2				1		1		
Horsepower.....	3				2		1		
Electric motors—									
Number.....	302		7		13	39	1	234	8
Horsepower.....	2,065		100		115	515	50	1,168	117
Rented—									
Electric motors—									
Number.....	38		4	5	1	16	8	1	3
Horsepower.....	369		52	6	3	177	117	10	4
Other kind, horsepower.....	274		35	8		181	43	7	
Furnished to other establishments, horsepower.....	200		25		175				

MANUFACTURES.

TABLE 53.—SHODDY—DETAILED SUMMARY, BY STATES: 1905.

	United States.	Connecticut.	Massachusetts.	New Jersey.	New York.	Ohio.	Pennsylvania.	Rhode Island.	Vermont.	All other states, ¹
Number of establishments.....	97	6	31	4	11	5	23	3	3	10
Capital, total.....	\$5,804,164	\$517,159	\$1,206,351	\$541,103	\$514,149	\$922,447	\$1,216,336	\$67,056	\$435,384	\$384,179
Land.....	\$461,352	\$27,975	\$104,004	\$69,291	\$19,000	\$75,120	\$115,251	\$1,000	\$26,661	\$23,050
Buildings.....	\$971,554	\$73,300	\$241,985	\$110,678	\$67,019	\$135,000	\$222,900	\$7,500	\$52,322	\$60,850
Machinery, tools, and implements.....	\$1,278,004	\$56,972	\$262,551	\$145,760	\$135,340	\$260,885	\$248,001	\$21,000	\$30,896	\$116,599
Cash and sundries.....	\$3,093,254	\$358,912	\$597,811	\$215,374	\$292,790	\$451,442	\$630,184	\$37,556	\$325,505	\$183,680
Proprietors and firm members.....	110	7	29	2	10	2	35	8	5	11
Salaried officials, clerks, etc.:—										
Total number.....	172	14	47	16	18	21	34	—	9	13
Total salaries.....	\$245,403	\$16,324	\$68,875	\$26,600	\$20,908	\$37,088	\$42,792	—	\$9,576	\$23,240
Officers of corporations—										
Number.....	44	3	14	4	4	7	4	—	—	8
Salaries.....	\$102,724	\$3,900	\$28,574	\$11,300	\$5,750	\$19,000	\$15,000	—	—	\$19,200
General superintendents, managers, clerks, etc.—										
Total number.....	128	11	33	12	14	14	30	—	9	5
Total salaries.....	\$142,679	\$12,424	\$40,301	\$15,300	\$15,158	\$18,088	\$27,792	—	\$9,576	\$4,040
Men—										
Number.....	119	11	30	11	13	12	29	—	5	5
Salaries.....	\$139,145	\$12,424	\$39,155	\$14,900	\$14,658	\$17,200	\$27,492	—	\$9,276	\$4,040
Women—										
Number.....	9	—	3	1	1	2	1	—	1	—
Salaries.....	\$3,534	—	\$1,146	\$400	\$500	\$888	\$300	—	\$300	—
Wage-earners, including pieceworkers, and total wages:										
Greatest number employed at any one time during the year.....	2,578	146	584	297	264	515	421	45	146	160
Least number employed at any one time during the year.....	1,758	103	337	178	188	372	309	43	96	133
Average number.....	2,089	124	444	223	195	426	360	43	123	151
Total wages.....	\$834,822	\$55,157	\$189,608	\$87,134	\$79,558	\$158,352	\$142,188	\$19,752	\$49,146	\$53,927
Men 16 years and over—										
Average number.....	1,625	117	379	183	166	268	274	42	86	110
Wages.....	\$723,540	\$53,021	\$173,457	\$76,988	\$72,195	\$121,479	\$120,772	\$19,544	\$38,722	\$47,362
Women 16 years and over—										
Average number.....	458	7	62	40	29	158	83	1	37	41
Wages.....	\$110,242	\$2,136	\$15,683	\$10,146	\$7,363	\$36,873	\$20,844	\$208	\$10,424	\$6,565
Children under 16 years—										
Average number.....	6	—	3	—	—	—	3	—	—	—
Wages.....	\$1,040	—	\$468	—	—	—	\$572	—	—	—
Average number of wage-earners, including pieceworkers, employed during each month:										
Men 16 years and over—										
January.....	1,562	107	367	215	134	265	252	44	75	103
February.....	1,648	115	388	222	145	294	248	43	84	109
March.....	1,673	115	427	202	151	299	231	42	93	113
April.....	1,651	115	424	193	148	272	250	42	95	112
May.....	1,599	125	400	179	150	248	257	42	86	112
June.....	1,568	119	379	168	147	251	262	41	91	110
July.....	1,620	132	371	162	166	258	287	42	94	108
August.....	1,601	121	359	162	179	246	288	41	95	110
September.....	1,622	122	368	159	184	246	295	41	96	111
October.....	1,605	113	360	168	181	238	312	42	81	110
November.....	1,646	109	360	176	196	274	304	42	74	111
December.....	1,705	111	345	190	211	325	302	42	68	111
Women 16 years and over—										
January.....	480	7	69	50	25	169	81	1	36	42
February.....	480	8	73	50	26	160	82	1	38	42
March.....	488	8	75	47	27	167	82	1	39	42
April.....	480	8	74	40	27	166	80	1	42	42
May.....	453	9	66	35	27	162	80	1	34	39
June.....	433	9	59	29	26	154	78	1	38	39
July.....	432	7	55	27	30	154	79	1	40	39
August.....	442	4	61	33	31	143	82	1	48	39
September.....	445	5	55	39	36	142	85	1	40	42
October.....	430	6	47	37	31	151	87	1	28	42
November.....	464	6	54	45	31	165	90	1	30	42
December.....	469	7	56	48	31	163	90	1	31	42
Children under 16 years—										
January.....	3	—	—	—	—	—	3	—	—	—
February.....	4	—	1	—	—	—	3	—	—	—
March.....	2	—	2	—	—	—	—	—	—	—
April.....	2	—	2	—	—	—	—	—	—	—
May.....	2	—	2	—	—	—	—	—	—	—
June.....	6	—	6	—	—	—	—	—	—	—
July.....	9	—	6	—	—	—	3	—	—	—
August.....	9	—	6	—	—	—	3	—	—	—
September.....	8	—	5	—	—	—	3	—	—	—
October.....	10	—	3	—	—	—	7	—	—	—
November.....	9	—	2	—	—	—	7	—	—	—
December.....	8	—	1	—	—	—	7	—	—	—
Skilled operatives, average number:										
Spinners—										
Men 16 years and over.....	2	—	—	—	—	—	—	—	—	2
Machinery:										
Sets of cards, number.....	517	57	176	65	31	64	77	5	9	83
Woolen.....	4	—	—	—	—	—	3	—	—	1
Worsted.....	5	—	—	—	5	—	—	—	—	—
Shoddy.....	508	57	176	65	—	64	74	5	9	82
Combing machines of American manufacture, number.....	5	—	—	—	—	—	5	—	—	—
Spindles, producing, mule, woolen, number.....	312	—	—	—	—	—	—	—	—	312
Pickers, number.....	317	19	107	25	30	23	64	2	21	26
Garnet machines, number.....	116	—	16	14	26	3	44	10	—	3
Miscellaneous expenses, total.....	\$461,527	\$26,753	\$123,506	\$38,043	\$47,607	\$90,124	\$74,880	\$9,155	\$32,445	\$19,014
Rent of works.....	\$23,955	—	\$6,225	—	\$4,990	—	\$5,470	\$2,260	—	\$5,010
Taxes.....	\$29,625	\$1,808	\$8,483	\$2,023	\$701	\$8,221	\$4,266	\$282	\$1,844	\$1,997
Rent of offices, interest, insurance, and all other sundry expenses not hitherto included.....	\$401,702	\$24,945	\$107,548	\$36,020	\$41,916	\$81,903	\$62,644	\$4,118	\$30,601	\$12,007
Contract work.....	\$6,245	—	\$1,250	—	—	—	\$2,500	\$2,495	—	—

¹ Includes establishments distributed as follows: California, 2; Georgia, 1; Illinois, 1; Maine, 2; Michigan, 1; New Hampshire, 1; Tennessee, 1; Wisconsin, 1.

TABLE 53.—SHODDY—DETAILED SUMMARY, BY STATES: 1905—Continued.

	United States.	Connecticut.	Massachusetts.	New Jersey.	New York.	Ohio.	Pennsylvania.	Rhode Island.	Vermont.	All other states.
Materials used, total cost.....	\$6,055,731	\$362,497	\$1,249,985	\$563,386	\$496,690	\$948,155	\$1,713,379	\$60,097	\$463,567	\$197,975
Wool—										
Foreign, in condition purchased—										
Pounds.....	267,500				250,500		17,000			
Cost.....	\$43,504				\$40,504		\$3,000			
Domestic, in condition purchased—										
Pounds.....	329,992		40,921	3,675	55,250	187,546	40,000			2,600
Cost.....	\$84,423		\$17,378	\$2,071	\$13,652	\$35,392	\$14,500			\$1,430
Foreign and domestic, scoured, pounds.....	421,492		40,921	3,675	205,750	117,546	51,000			2,600
Animal hair—										
Camel, alpaca, and vicuña hair—										
Pounds.....	5,000						5,000			
Cost.....	\$1,500						\$1,500			
Buffalo, cow, and other animal hair—										
Pounds.....	500,000				500,000					
Cost.....	\$12,654				\$12,654					
Cotton, other domestic—										
Pounds.....	44,400			3,000	6,000	35,400				
Cost.....	\$5,331			\$443	\$720	\$4,168				
Materials purchased in partially manufactured form—										
Tailors' clippings, rags, etc.—										
Pounds.....	68,921,097	3,803,409	14,412,022	3,615,202	4,603,993	11,180,230	20,365,808	1,114,900	4,899,719	4,925,814
Cost.....	\$4,295,641	\$231,083	\$983,115	\$180,121	\$308,730	\$813,314	\$1,109,961	\$23,674	\$123,840	\$171,803
Shoddy—										
Pounds.....	187,100		151,100				6,000			30,000
Cost.....	\$12,385		\$11,800				\$360			\$225
Wool waste and noils—										
Pounds.....	8,141,220	705,158	707,408	522,460	204,500		4,702,130	1,299,564		
Cost.....	\$895,321	\$32,387	\$68,886	\$222,358	\$26,035		\$519,664	\$25,991		
Camel, alpaca, and vicuña noils—										
Pounds.....	36,626			36,626						
Cost.....	\$14,433			\$14,433						
Tops—										
Pounds.....	150				150					
Cost.....	\$113				\$113					
All other materials which are components of the product.....	\$97,139		\$8,500	\$53,200	\$30,439		\$5,000			
Soap—										
Pounds.....	128,511		4,290	10,221	50,000	64,000				
Cost.....	\$5,867		\$208	\$459	\$2,000	\$3,200				
Oil for preparing wool for cards and combs—										
Gallons.....	329,107	42,192	126,725	46,154	15,256	40,200	47,448		6,802	4,330
Cost.....	\$84,034	\$9,681	\$33,354	\$8,107	\$3,669	\$12,495	\$13,925		\$1,897	\$900
Chemicals and dyestuffs.....	\$142,455	\$14,455	\$37,370	\$15,302	\$14,281	\$28,495	\$5,370		\$15,671	\$11,511
Fuel.....	\$149,144	\$10,366	\$39,823	\$13,484	\$13,163	\$28,166	\$24,114	\$558	\$12,315	\$7,155
Rent of power and heat.....	\$26,893		\$7,094		\$1,600		\$5,350	\$3,000	\$8,949	\$900
Mill supplies.....	\$29,798	\$1,421	\$11,745	\$807	\$2,929	\$2,949	\$6,778	\$1,584	\$745	\$840
All other materials.....	\$93,449	\$280	\$12,386	\$49,088	\$19,890	\$4,200	\$1,921	\$2,579		\$3,105
Freight.....	\$61,647	\$12,824	\$18,326	\$3,513	\$6,311	\$15,776	\$1,936	\$2,711	\$150	\$100
Products, total value.....	\$3,406,425	\$468,445	\$1,814,944	\$866,268	\$701,954	\$1,239,267	\$2,204,279	\$113,433	\$639,865	\$357,970
Woolen yarn, all wool—										
Pounds.....	2,037				2,037					
Value.....	\$234				\$234					
Waste—										
Pounds.....	42,504				27,504		15,000			
Value.....	\$1,544				\$44		\$1,500			
Shoddy and mungo—										
Pounds.....	54,401,295	1,005,053	10,919,178	3,769,758	2,523,845	7,194,188	22,494,410		(1)	\$6,494,865
Value.....	\$6,831,689	\$150,758	\$1,403,674	\$651,752	\$375,238	\$1,239,267	\$2,136,797		(1)	\$874,203
Wool extract—										
Pounds.....	6,375,768	2,442,293	2,214,285		1,000,000				(1)	\$719,190
Value.....	\$727,912	\$238,379	\$272,318		\$115,100				(1)	\$102,115
Flocks—										
Pounds.....	2,968,203	651,881		155,200	40,000			2,121,122		
Value.....	\$143,526	\$44,756		\$6,250	\$12,500			\$80,030		
All other products.....	\$365,571	\$1,215	\$19,940	\$208,266	\$133,528			\$1,015		\$1,567
Amount received for contract work.....	\$335,939	\$33,337	\$118,972		\$65,310		\$65,982	\$32,388	(1)	\$19,950
Power:										
Number of establishments reporting.....	95	6	30	4	11	5	23	3	3	10
Total horsepower.....	12,445	891	4,108	1,070	1,089	1,175	1,960	133	895	1,124
Owned—										
Engines—										
Steam—										
Number.....	80	11	19	13	7	5	25		3	6
Horsepower.....	7,825	570	2,060	980	495	1,100	1,770		115	735
Water wheels—										
Number.....	66	11	34	1	0				3	6
Horsepower.....	3,601	321	1,865	75	507			88	400	345
Electric motors—										
Number.....	8		1	1	2	2			1	1
Horsepower.....	201		25	15	52	75			30	4
Rented—										
Electric motors—										
Number.....	8				1		2		5	
Horsepower.....	417				27		40		350	
Other kind, horsepower.....	401		158		8		150	45		40
Furnished to other establishments, horsepower.....	355						75			280

1Included in "all other states."

2Includes products for Vermont.

TABLE 54.—WOOL SCOURING—DETAILED SUMMARY, BY STATES: 1905.

	United States.	California.	Massachusetts.	New Mexico.	All other states. ¹
Number of establishments.....	27	4	6	3	14
Capital, total.....	\$1,187,716	\$83,683	\$398,120	\$146,000	\$559,913
Land.....	\$133,969		\$94,419	\$3,500	\$36,050
Buildings.....	\$192,626		\$67,326	\$29,000	\$96,300
Machinery, tools, and implements.....	\$466,390	\$40,809	\$179,981	\$62,500	\$183,100
Cash and sundries.....	\$394,731	\$42,874	\$56,394	\$51,000	\$244,463
Proprietors and firm members.....	18	6	2		10
Salaried officials, clerks, etc.:—					
Total number.....	55	8	20	5	22
Total salaries.....	\$77,694	\$8,354	\$28,340	\$11,400	\$29,600
Officers of corporations—					
Number.....	15		2	2	11
Salaries.....	\$28,760		\$2,200	\$7,800	\$18,760
General superintendents, managers, clerks, etc.—					
Total number.....	40	8	18	3	11
Total salaries.....	\$48,934	\$8,354	\$26,140	\$3,600	\$10,840
Men—					
Number.....	37	7	16	3	11
Salaries.....	\$47,414	\$7,834	\$25,140	\$3,600	\$10,840
Women—					
Number.....	3	1	2		
Salaries.....	\$1,520	\$520	\$1,000		
Wage-earners, including pieceworkers, and total wages:					
Greatest number employed at any one time during the year.....	1,067	172	417	114	364
Least number employed at any one time during the year.....	649	23	302	41	283
Average number.....	779	92	357	64	266
Total wages.....	\$397,811	\$51,676	\$179,170	\$24,482	\$142,483
Men 16 years and over—					
Average number.....	702	65	351	30	256
Wages.....	\$375,578	\$42,886	\$177,672	\$15,257	\$139,763
Women 16 years and over—					
Average number.....	67	27		34	6
Wages.....	\$19,610	\$8,790		\$9,225	\$1,595
Children under 16 years—					
Average number.....	10		6		4
Wages.....	\$2,623		\$1,498		\$1,125
Miscellaneous expenses:					
Total.....	\$149,155	\$21,160	\$78,698	\$12,235	\$36,062
Rent of works.....	\$17,460	\$9,910	\$900		\$6,650
Taxes.....	\$8,001	\$189	\$4,515	\$772	\$2,525
Rent of offices, interest, insurance, and all other sundry expenses not hitherto included.....	\$123,694	\$12,061	\$73,283	\$11,463	\$26,887
Materials used:					
Total cost.....	\$214,624	\$29,552	\$71,778	\$18,287	\$95,007
Principal materials.....	\$61,480	\$5,817		\$9,863	\$45,800
Fuel.....	\$58,781	\$0,579	\$19,432	\$3,942	\$28,828
Rent of power and heat.....	\$15,789	\$429	\$12,778	\$2,582	
Mill supplies.....	\$11,111	\$2,335	\$1,686	\$200	\$6,890
All other materials.....	\$64,072	\$14,392	\$35,391	\$1,700	\$12,589
Freight.....	\$3,391		\$2,491		\$900
Products, amount received for work done.....	\$1,052,909	\$120,277	\$432,201	\$90,898	\$409,533
Power:					
Number of establishments reporting.....	26	4	6	3	13
Total horsepower.....	3,488	253	1,500	241	1,494
Owned—					
Engines—					
Steam—					
Number.....	24	4	4	2	14
Horsepower.....	2,532	180	785	200	1,367
Gas and gasoline—					
Number.....	3		2	1	
Horsepower.....	71		65	6	
Water wheels—					
Number.....	8		5		5
Horsepower.....	747		630		117
Electric motors—					
Number.....	1				1
Horsepower.....	10				10
Rented—					
Electric motors—					
Number.....	8	5		3	
Horsepower.....	108	73		35	
Other kind, horsepower.....	20		20		
Furnished to other establishments, horsepower.....	50				50

¹ Includes establishments distributed as follows: Arkansas, 1; Colorado, 2; Connecticut, 1; Illinois, 2; Minnesota, 1; Missouri, 1; New Jersey, 2; Oregon, 2; Pennsylvania, 1; Rhode Island, 1.

TABLE 55.—WOOL PULLING—DETAILED SUMMARY, BY STATES: 1905.

	United States.	Illinois.	Massachu- setts.	Missouri.	New York.	Pennsyl- vania.	All other states. ¹
Number of establishments.....	34	8	8	3	4	8	13
Capital, total.....	\$2,534,029	\$33,200	\$371,539	\$30,300	\$259,872	\$1,370,208	\$468,910
Land.....	\$229,258	\$3,500	\$51,200	\$6,500	\$9,000	\$127,250	\$31,808
Buildings.....	\$283,986	\$6,000	\$82,800	\$10,200	\$17,000	\$110,000	\$57,986
Machinery, tools, and implements.....	\$193,556	\$1,700	\$27,009	\$1,100	\$24,365	\$79,200	\$60,182
Cash and sundries.....	\$1,827,229	\$22,000	\$210,530	\$12,500	\$209,507	\$1,053,758	\$318,934
Proprietors and firm members.....	40	4	5	3	5	9	14
Salaried officials, clerks, etc.:—							
Total number.....	65	1	1	1	7	13	37
Total salaries.....	\$74,415	\$600	\$6,820	\$1,000	\$11,339	\$18,500	\$36,156
Officers of corporations—							
Number.....	16				1	3	12
Salaries.....	\$26,739				\$89	\$9,600	\$16,250
General superintendents, managers, clerks, etc. —							
Total number.....	49	1	1	1	6	10	25
Total salaries.....	\$47,676	\$600	\$6,820	\$1,000	\$10,450	\$8,900	\$19,906
Men—							
Number.....	43	1	6		6	1	21
Salaries.....	\$43,876	\$600	\$6,820		\$10,450	\$8,500	\$17,506
Women—							
Number.....	6			1		1	4
Salaries.....	\$3,800			\$1,000		\$400	\$2,400
Wage-earners, including pieceworkers, and total wages:							
Greatest number employed at any one time during the year.....	944	44	91	33	115	286	375
Least number employed at any one time during the year.....	462	18	29	7	55	185	168
Average number.....	681	28	53	12	93	252	263
Total wages.....	\$364,754	\$13,067	\$24,735	\$5,200	\$51,230	\$112,401	\$158,121
Men 16 years and over—							
Average number.....	680	28	53	12	92	232	263
Wages.....	\$364,394	\$13,067	\$24,735	\$5,200	\$50,870	\$112,401	\$158,121
Children under 16 years —							
Average number.....	1				1		
Wages.....	\$360				\$360		
Miscellaneous expenses, total.....	\$128,396	\$3,610	\$18,324	\$4,718	\$23,794	\$31,083	\$46,467
Rent of works.....	\$15,462	\$1,937	\$600		\$4,600	\$1,900	\$6,425
Taxes.....	\$6,723	\$452	\$2,044	\$308	\$637	\$1,989	\$1,293
Rent of offices, interest, insurance, and all other sundry expenses not hitherto included.....	\$106,211	\$1,221	\$15,680	\$4,410	\$18,357	\$27,794	\$38,749
Materials used, total cost.....	\$103,984	\$2,412	\$4,754	\$875	\$5,363	\$24,887	\$65,693
Principal materials.....	\$53,688	\$773		\$200			\$52,715
Fuel.....	\$20,434	\$452	\$2,529	\$665	\$2,404	\$7,344	\$7,040
Rent of power and heat.....	\$408				\$187		\$221
Mill supplies.....	\$3,168	\$26	\$348	\$10	\$849	\$758	\$1,177
All other materials.....	\$19,132	\$1,161	\$50		\$1,756	\$12,185	\$3,980
Freight.....	\$7,154		\$1,827		\$167	\$4,600	\$560
Products, amount received for work done.....	\$881,706	\$34,424	\$66,615	\$13,440	\$105,897	\$291,080	\$370,250
Power:							
Number of establishments reporting.....	25		3	1	3	8	10
Total horsepower.....	1,350		245	35	210	300	560
Owned—							
Engines—							
Steam—							
Number.....	26		3	1	2	8	12
Horsepower.....	1,125		245	35	60	275	510
Gas and gasoline —							
Number.....	2					1	1
Horsepower.....	20					15	5
Water wheels—							
Number.....	5				3	2	
Horsepower.....	159				150	9	
Electric motors—							
Number.....	2					1	1
Horsepower.....	26					1	25
Rented—							
Electric motors—							
Number.....	2						2
Horsepower.....	20						20

¹ Includes establishments distributed as follows: California, 2; Connecticut, 1; Kentucky, 1; Maine, 1; Michigan, 1; New Jersey, 1; Ohio, 1; Utah, 2; Washington, 2; Wisconsin, 1.

SILK MANUFACTURES

SILK MANUFACTURES.

By FRANKLIN ALLEN, Expert Special Agent.

The statistics for the silk industry in the United States, as reported at the census of 1905, which covers the calendar year 1904, show a gratifying increase in volume of manufacture over the census of 1900. The year 1904 was preceded by a poor year for the silk industry in this as well as in foreign countries on account of lessened production and higher prices of raw materials. It was not until late in 1904 (October–November) that more favorable conditions ensued in the United States because of increased supplies of raw silk in the world's silk markets and more moderate prices of raw materials. These prime factors developed a greater activity in the silk mills of this country. This activity continued without interruption until late in the spring of 1905, but it

commenced so late in 1904 that the census figures of that year were not materially affected by it.

The silk industry as treated in this report is the census classification of "silk and silk goods," and embraces only products in which silk is the material of predominant value. Silk hose and silk knit goods are not included, as these articles have been included in the classification of "hosiery and knit goods," and treated as an independent branch of the textile industry since the census of 1890.

Table 1 presents a comparative summary of the industry as returned at each census from 1860 to 1905, inclusive, with the per cent of increase for each census period.

TABLE 1.—COMPARATIVE SUMMARY, WITH PER CENT OF INCREASE: 1860 TO 1905.

	CENSUS.						PER CENT OF INCREASE.				
	1905	1900	1890	1880	1870	1860	1900 to 1905	1890 to 1900	1880 to 1890	1870 to 1880	1860 to 1870
Number of establishments.....	624	483	472	382	86	139	29.2	2.3	23.6	344.2	138.1
Capital.....	\$109,556,621	\$81,082,201	\$51,007,537	\$19,125,300	\$6,231,130	\$2,926,980	35.1	59.0	166.7	206.9	112.9
Salaried officials, clerks, etc., number.....	4,027	2,657	2,153 ¹	(³)	(³)	(³)	51.6	73.5	.....	.....	.....
Salaries.....	\$4,742,270	\$3,134,352	\$1,917,877	(³)	(³)	(³)	51.3	63.4	.....	.....	.....
Wage-earners, average number.....	79,601	65,416	49,382	31,337	6,649	5,435	21.7	32.5	57.6	371.3	22.3
Total wages.....	\$26,767,943	\$20,982,194	\$17,762,441	\$9,146,705	\$1,942,286	\$1,050,224	27.6	18.1	94.2	370.9	84.9
Men 16 years and over.....	27,037	24,206	17,602	9,375	1,734	1,585	11.7	37.5	87.8	440.7	9.4
Wages.....	\$12,787,322	\$10,699,483	\$9,349,531	(³)	(³)	(³)	19.5	14.4	.....	.....	.....
Women 16 years and over.....	45,198	34,797	28,914	16,396	3,529	3,850	29.9	20.3	76.3	364.6	18.3
Wages.....	\$12,859,156	\$9,377,696	\$7,970,065	(³)	(³)	(³)	37.1	17.7	.....	.....	.....
Children under 16 years.....	7,366	6,413	2,866	5,566	1,386	(³)	14.8	123.8	148.5	301.6	.....
Wages.....	\$1,121,465	\$905,015	\$442,845	(³)	(³)	(³)	23.9	104.4	.....	.....	.....
Miscellaneous expenses.....	\$14,052,777	\$10,264,208	\$4,259,623	(⁴)	(⁴)	(⁴)	36.9	141.0	.....	.....	.....
Cost of materials used.....	\$75,861,188	\$62,406,665	\$51,004,425	\$22,467,701	\$7,817,559	\$3,901,777	21.6	22.4	127.0	187.4	100.4
Value of products, including amount received for contract work.....	\$133,288,072	\$107,256,258	\$87,298,454	\$41,033,045	\$12,210,662	\$6,607,771	24.3	22.9	112.8	236.0	84.8
Raw silk used, pounds.....	11,572,783	9,760,770	6,376,881	2,690,482	684,488	462,965	18.6	53.1	137.0	293.1	47.8

¹ Decrease.

² Includes proprietors and firm members, with their salaries; number only reported in 1900 and 1905, but not included in this table.

³ Not reported separately.

⁴ Not reported.

MATERIALS AND PRODUCTS TWICE INCLUDED.

As was fully explained in the report on silk manufacture at the last census,¹ there is considerable duplication in the materials and products reported for the silk industry. But to give due credit to each state for its manufacturing operations, and in order that the silk statistics be comparable with those of other industries and prior censuses, it is necessary to present the total cost of materials and total value of products, including duplications. The method of eliminating the duplication may be briefly stated as follows:

1. Organzine and tram, reported as material and product, is deducted from both materials and products, respectively.

2. Spun silk, reported as a product, is deducted from both materials and products.

3. Fringe and floss, reported as material, is deducted from both materials and products.

4. Amount received for contract work, reported as product, is deducted from products.

The following tabular statement shows for the United States the quantities and values of the materials and products twice included at the census of 1905:

¹ Twelfth Census, Manufactures, Part III, pages 200 and 201.

Materials and products twice included: 1905.

	MATERIALS.		PRODUCTS.	
	Pounds.	Value.	Pounds.	Value.
Total.....	3,857,084	\$16,400,231	2,645,985	\$14,754,512
Organzine and tram.....	3,236,744	14,552,425	¹ 2,025,645	¹ 9,190,650
Fringe and floss, bought as such and used in manufacture.....	49,811	187,159	49,811	187,159
Spun silk, made for sale.....	570,529	1,660,647	570,529	1,660,647
Amount received for contract work.....				3,716,056

¹Organzine and tram, made for sale.

Table 2 shows, by states, for 1890, 1900, and 1905, the cost of materials used and the value of products as reported; the cost and value, respectively, of the materials and products twice included; and the cost of materials and value of products, exclusive of duplications. The value of finished goods is shown to be \$118,533,560, which is \$26,082,348, or 28.2 per cent, greater than the merchantable product of the silk industry in 1900, and \$49,378,961, or 71.4 per cent, greater than the net product for 1890.

TABLE 2.—MATERIALS AND PRODUCTS TWICE INCLUDED, AND MATERIALS AND PRODUCTS EXCLUSIVE OF DUPLICATIONS, BY STATES: 1890 TO 1905.

STATE.	Census.	MATERIALS.			PRODUCTS.		
		Cost of materials as reported.	Cost of materials twice included.	Cost of materials exclusive of duplications.	Value of products as reported.	Value of products twice included.	Value of products exclusive of duplications.
United States.....	1905	\$75,861,188	\$16,400,231	\$59,460,957	\$133,288,072	\$14,754,512	\$118,533,560
	1900	62,406,665	11,840,267	50,566,398	107,256,258	14,805,046	92,451,512
	1890	51,004,425	15,537,520	35,466,905	87,298,454	18,143,855	69,154,299
California.....	1905	217,068	12,280	204,788	351,949	19,300	332,649
	1900	146,219	8,420	137,799	255,902	9,300	246,602
	1890	146,406	3,500	142,906	271,912	5,600	266,312
Connecticut.....	1905	9,098,196	1,190,426	7,907,770	15,623,693	1,642,299	13,981,394
	1900	7,198,008	557,713	6,640,295	12,378,981	1,041,714	11,337,267
	1890	6,201,876	889,756	5,312,120	9,788,951	1,665,390	8,123,561
Illinois.....	1905	486,015	23,475	462,540	735,242	159,310	575,932
	1900	187,514	51,042	136,472	421,088	29,893	391,195
	1890	314,855		314,855	785,845		785,845
Massachusetts.....	1905	4,156,919	423,413	3,733,506	7,012,062	540,856	6,471,206
	1900	3,823,963	354,697	3,469,266	5,957,532	290,730	5,666,802
	1890	3,251,893	746,175	2,505,718	5,557,569	945,610	4,611,959
New Jersey.....	1905	22,339,447	5,852,365	16,487,082	42,862,907	1,796,351	41,066,556
	1900	21,631,118	6,704,322	15,926,796	39,966,662	2,268,720	37,697,942
	1890	17,908,883	5,205,501	12,703,382	30,760,371	5,354,389	25,405,982
New York.....	1905	10,490,474	3,297,528	7,192,946	20,181,212	1,067,042	19,114,170
	1900	6,570,037	1,144,973	5,425,064	12,706,246	751,034	11,955,212
	1890	10,174,818	1,318,742	8,856,076	19,417,796	1,681,481	17,736,315
Pennsylvania.....	1905	24,267,122	5,543,762	18,723,360	39,333,520	8,272,332	31,061,188
	1900	19,884,869	3,979,831	15,905,038	31,072,926	9,350,279	21,713,647
	1890	12,094,389	7,017,604	5,076,785	19,357,546	7,953,323	11,404,223
Rhode Island.....	1905	1,695,950	4,567	1,691,383	2,555,986	61,800	2,494,186
	1900	818,561	37,730	780,831	1,311,333	22,294	1,289,039
	1890	149,763	68,242	81,521	229,062	94,062	135,000
All other states.....	¹ 1905	3,109,997	52,415	3,057,582	4,631,501	1,195,222	3,436,279
	² 1900	2,146,376	1,539	2,144,837	3,185,588	1,032,082	2,153,506
	³ 1890	761,542	288,000	473,542	1,129,402	444,000	685,402

¹ Includes states as follows: Delaware, Maine, Maryland, Michigan, New Hampshire, North Carolina, Ohio, and Virginia.² Includes states as follows: Delaware, Maine, Maryland, Michigan, New Hampshire, North Carolina, Utah, and Virginia.³ Includes states as follows: Maine, Maryland, Michigan, Missouri, North Carolina, Ohio, and Virginia.

IMPORTED SILK MATERIALS AND FINISHED FABRICS.

The quantity and value of the imports of raw silk, spun silk, raw silk waste, and manufactured silk goods, for 1850, 1860, 1870, 1880, and for each fiscal year between 1880 and 1905, inclusive, together with the value of domestic silk manufactures at each census from 1850 to 1905, inclusive, are shown in Table 3.

An increase of 31.2 per cent in the value of silk materials, and of 33.7 per cent in the value of raw silk alone imported between the censuses of 1900 and 1905 is shown. As explained in this report under "Interchange of fibers in the textile industries," 1,221,586 pounds of reeled and spun silk were consumed in the cotton, wool, and hosiery and knit goods industries, as reported for the census of 1905.

TABLE 3.—IMPORTS OF SILK MATERIAL AND SILK GOODS, AND DOMESTIC PRODUCTION: 1850 TO 1905.

YEAR ENDING JUNE 30—	IMPORTED SILK MATERIALS. ¹						VALUE OF MANUFACTURED SILK GOODS.	
	Total cost.	Raw silk.		Spun silk.		Raw silk waste, including cocoons and noils.	Imported. ¹	Domestic.
		Pounds.	Cost.	Pounds.	Cost.			
1905.....	\$64,160,263	17,812,133	\$59,542,892	2,305,847	\$3,120,210	4,545,174	\$1,497,161	\$28,702,445
1904.....	49,139,607	12,630,883	44,461,564	2,053,077	3,039,107	4,091,826	1,638,936	28,443,901
1903.....	52,836,810	13,637,206	49,002,597	1,924,251	2,825,760	1,633,653	1,008,453	33,222,113
1902.....	45,551,269	12,620,682	41,714,331	2,002,672	2,915,918	1,614,144	921,020	29,326,310
1901.....	32,556,637	9,139,617	29,353,777	1,652,177	2,505,272	1,265,938	697,588	24,330,995
1900.....	48,884,997	11,259,310	44,549,672	2,336,947	3,555,237	1,814,405	780,088	26,803,534
1899.....	34,442,215	9,691,145	31,827,061	1,703,794	1,962,588	1,559,238	652,566	23,063,916
1898.....	33,287,883	10,315,162	31,446,800	956,974	1,177,817	1,772,789	663,266	21,457,249
1897.....	20,001,899	6,513,612	18,496,944	801,336	1,083,616	1,479,832	921,339	25,433,477
1896.....	27,762,032	8,000,621	26,246,902	782,796	998,604	1,363,366	516,526	25,629,128
1895.....	23,865,675	7,974,810	22,029,068	843,647	1,239,619	1,341,650	596,988	29,783,529
1894.....	16,953,572	4,956,875	15,627,822	437,428	719,390	945,610	606,360	23,441,139
1893.....	31,175,837	7,422,430	29,055,557	758,502	1,338,851	1,075,047	781,429	36,581,097
1892.....	26,152,709	7,521,342	24,321,494	489,652	1,093,384	1,312,707	737,831	30,348,796
1891.....	20,897,502	4,917,688	17,994,654	856,706	1,821,421	1,348,941	1,081,427	35,478,966
1890.....	25,209,175	5,943,360	23,285,099	411,621	883,644	1,567,080	1,040,432	37,363,143
1889.....	19,990,955	5,329,646	18,544,025	274,362	659,045	1,315,478	787,885	34,297,684
1888.....	20,509,092	5,173,840	19,151,208	197,139	578,950	1,196,482	778,934	32,363,678
1887.....	20,079,384	4,599,574	18,687,245	172,617	441,299	1,428,517	950,840	30,822,978
1886.....	18,696,578	4,754,626	17,232,505	178,383	442,310	2,063,434	1,021,763	27,613,545
1885.....	13,112,641	3,424,076	12,421,739	78,890	226,412	884,332	464,490	27,880,386
1884.....	13,427,851	3,222,546	12,481,496	91,750	189,722	1,062,342	756,633	37,840,852
1883.....	15,269,984	3,253,370	14,043,340	43,812	126,832	1,477,736	1,099,812	33,180,280
1882.....	13,610,072	2,879,402	12,890,392	14,726	47,296	341,867	672,384	38,280,955
1881.....	11,509,008	2,550,103	10,888,264	19,325	60,830	240,310	559,914	32,316,396
1880.....	13,385,134	2,562,236	12,024,099	37,239	111,999	.....	1,248,436	31,348,948
1870.....	3,055,626	583,539	3,017,958	7,521	37,668	.....	.....	24,219,981
1860.....	1,340,676	297,877	1,340,676	(²)	(²)	.....	.....	32,961,120
1850.....	401,385	120,010	401,385	(²)	(²)	.....	.....	17,694,658

¹ Bureau of Statistics, Department of Commerce and Labor, "Commerce and Navigation of the United States."² Estimated from current prices, the value only being on record.³ Not reported separately.

The values of imported manufactured goods are foreign invoice values, to which an average of about 70 per cent should be added for freight, revenue duty, importers' profits, and occasional advances on invoices in order to determine the actual cost to consumers. While the increase in the value of manufactured silk goods imported in 1905 over 1900 was only 7.1 per cent, it is important to note that the value of the goods imported in 1905 is distributed as follows:

KIND.	Value.
Total.....	\$28,702,445
Dress and piece goods.....	15,155,053
Laces and embroideries.....	4,670,853
Ribbons.....	1,880,071
Clothing, ready-made, and wearing apparel.....	2,254,903
Velvets, plushes, and other pile fabrics.....	1,386,047
All other, not specially provided for.....	3,355,518

Spun silk yarns, known in Europe outside of England, as "schappe" yarns, are excluded from finished goods imported, as they are classified for Census purposes as materials used.

MATERIALS AND PRODUCTS.

Table 4 shows the quantity and cost of materials used and the value of products, with the per cent of increase for each item, for 1890, 1900, and 1905.

In the silk industry the cost of materials per \$100 of products has varied but slightly. In 1880 it was \$54.76; in 1890, \$58.43; in 1900, \$58.18; and in 1905, \$56.92.

The quantity of organzine and tram bought as such and used in manufacturing in 1905 was 38.4 per cent greater than in 1900 and the cost 38.1 per cent greater. No similar comparison with the census figures of 1890

is possible, for the reason that the amount of organzine and tram reported as material at that census included organzine and tram thrown under contract for

silk manufacturers by commission throwsters, while the amounts reported for the censuses of 1900 and 1905 represent only organzine and tram purchased.

TABLE 4.—MATERIALS USED, BY KIND, QUANTITY, AND COST; AND PRODUCTS, BY KIND AND VALUE, WITH PER CENT OF INCREASE: 1890 TO 1905.

	CENSUS.			PER CENT OF INCREASE.	
	1905	1900	1890	1900 to 1905	1890 to 1900
Materials used, total cost.....	\$75,861,188	\$62,406,665	\$51,004,425	21.6	22.4
Raw silk—					
Pounds.....	11,572,783	9,760,770	6,376,881	18.6	53.1
Cost.....	\$45,318,416	\$40,721,877	\$26,087,371	11.3	56.1
Waste silk, cocoons, and noils—					
Pounds.....	(¹)	1,667,195	1,357,618	.....	22.8
Cost.....	(¹)	\$734,539	\$1,106,608	.....	23.6
Organzine and tram—					
Pounds.....	3,236,744	2,338,464	3,305,372	38.4	29.3
Cost.....	\$14,552,425	\$10,539,632	\$16,518,979	38.1	26.2
Spun silk—					
Pounds.....	1,951,201	1,550,291	(¹)	25.9	.....
Cost.....	\$4,310,061	\$3,406,059	(¹)	26.5	.....
Other silk materials—					
Pounds.....	515,962	74,040	744,223	596.9	290.1
Cost.....	\$1,810,632	\$284,788	\$2,638,242	535.8	289.2
Yarns, other than silk—					
Pounds.....	9,730,769	7,116,728	5,624,960	36.7	26.5
Cost.....	\$3,713,794	\$2,406,354	\$2,327,684	54.3	3.4
Fuel and rent of power and heat.....	\$1,130,556	\$684,002	\$485,516	65.3	40.9
All other materials, including mill supplies and freight.....	\$5,025,304	\$3,629,414	\$1,840,025	38.5	97.2
Products, total value.....	\$133,288,072	\$107,256,258	\$87,298,454	24.3	22.9
Organzine and tram made for sale.....	\$9,190,650	\$11,167,191	\$16,880,366	217.7	233.8
Spun silk yarn made for sale.....	\$1,660,647	\$1,026,227	\$1,263,489	61.8	218.8
Machine twist and sewing, embroidery, fringe, floss, and wash silks.....	\$10,146,071	\$10,246,190	\$8,917,844	21.0	14.9
Dress goods, figured and plain, and other silk broad goods, except velvets and plushes.....	\$66,917,762	\$52,152,816	\$22,955,750	28.3	127.2
Velvets and plushes.....	\$4,502,021	\$4,959,971	\$3,141,026	29.2	57.9
Tapestries, curtains, and other upholstery broad goods.....	\$1,559,982	\$1,009,835	\$3,712,332	54.5	272.8
Ribbons and laces.....	\$22,636,093	\$19,270,283	\$17,343,197	17.5	11.1
Braids and bindings.....	\$3,493,977	\$1,522,565	\$2,771,382	129.5	245.1
Dress, cloak, millinery, and military trimmings, including fringes and gimps.....	\$4,124,651	\$2,295,010	\$8,554,566	79.7	273.2
All other products, including embroideries.....	\$5,340,162	\$1,268,950	\$1,758,502	320.8	27.8
Amount received for contract work.....	\$3,716,056	\$2,337,220	(¹)	59.0	.....

¹ Not reported separately.

² Decrease.

Throwsters.—The work of commission throwsters, although an important branch of the industry, is now treated by the Bureau of the Census as done on commission for other establishments engaged in weaving, the latter furnishing the raw silk and accounting for the products. The relation of commission throwing to the silk industry of the United States grows more and more important. Table 5 shows the relation at the census of 1905.

Of the 11,572,783 pounds of raw silk consumed by silk mills at this census, 7,101,851 pounds, or 61.4 per cent, were thrown under contract into organzine and tram by establishments throwing raw silk for others; 1,744,709 pounds, or 15.1 per cent, were consumed by the "machine twist," "sewing, embroidery, and wash silk," and "fringe and floss" branches of the industry. The remainder, 2,726,223 pounds, or 23.5 per cent of the total, was thrown in silk mills which operate their own throwing plants.

TABLE 5.—Total consumption of raw silk, and raw silk thrown under contract, by states: 1905.

STATE.	Total consumption of raw silk (pounds).	RAW SILK THROWN UNDER CONTRACT.		
		Total (pounds).	Organzine (pounds).	Tram (pounds).
United States.....	11,572,783	7,101,851	3,635,384	3,466,467
California.....	46,255	.....	.....	.....
Connecticut.....	1,320,509	216,454	131,038	85,416
Illinois.....	78,100	.....	.....	.....
Massachusetts.....	739,004	.....	.....	.....
New Jersey.....	3,553,090	1,689,088	702,055	987,033
New York.....	1,006,793	705,078	359,248	345,830
Pennsylvania.....	3,970,044	4,116,299	2,288,174	1,828,125
Rhode Island.....	262,112	88,000	68,000	20,000
All other states ¹	596,876	286,932	86,869	200,063

¹ Includes states as follows: Delaware, Maine, Maryland, Michigan, New Hampshire, North Carolina, Ohio, and Virginia.

Table 6 shows, by states, the number of throwing spindles in commission throwing plants and in silk mills, as reported at the census of 1905.

TABLE 6.—THROWING SPINDLES IN COMMISSION THROWING PLANTS AND SILK MILLS: 1905.

STATE.	THROWING SPINDLES (NUMBER).								
	Aggregate.	Commission throwing plants.				Silk mills.			
		Total.	Organzine.		Tram.	Total.	Organzine.		Tram.
			First time over.	Second time over.			First time over.	Second time over.	
United States.....	1,197,408	628,914	350,549	204,885	73,480	568,494	302,431	211,012	55,051
California.....	2,034					2,034	838	38	1,158
Connecticut.....	28,172	8,440	4,092	2,728	1,620	19,732	9,198	6,914	3,620
Massachusetts.....	22,390					22,390	9,454	10,156	2,780
New Jersey.....	232,673	151,972	86,370	46,114	19,488	80,701	39,384	30,256	11,061
New York.....	102,428	57,170	28,420	17,628	11,122	45,258	27,578	14,632	3,048
Pennsylvania.....	743,765	387,798	221,229	131,695	34,874	355,967	192,817	135,606	27,544
Rhode Island.....	6,836	6,836	3,400	1,436	2,000				
All other states ¹	59,110	16,698	7,038	5,284	4,376	42,412	23,162	13,410	5,840

¹ Includes states as follows: Commission throwing plants—Maryland, New Hampshire, North Carolina, and Virginia. Silk mills—Delaware, Maine, Michigan, North Carolina, and Virginia.

The total number of throwing spindles reported in 1905 was 1,197,408, an increase of 14.6 per cent since 1900. They were classified as follows:

Throwing spindles: 1905 and 1900.

	1905	1900	Per cent of increase.
Total.....	1,197,408	1,045,304	14.6
Organzine, first time over.....	652,980	582,180	12.2
Organzine, second time over.....	415,897	345,145	20.5
Tram spindles.....	128,531	117,979	8.9

It is to be noted that the statistics preserve the proper technical proportion between the number of second time over and first time over spindles, namely, about two-thirds.

During the year 1905, immediately following the census, the following additions were made to the throwing spindle equipment of the United States:¹

	Total.	Belt-driven spindles.	Band-driven high speed spindles.
Total.....	98,040	87,924	10,116
Organzine, first time over.....	50,270	43,526	6,744
Organzine, second time over.....	36,882	33,510	3,372
Tram spindles.....	10,888	10,888	

In silk spinning, the belt system, so called, where the spindles are driven by contact with an endless belt instead of with bands, was referred to in the special report on silk at the census of 1900 as having been first practically introduced in the United States in the year 1889. The belt-drive system was adapted to the modern self-oiling spindle and promptly won favor and adoption.

¹ Thirty-fourth Annual Report of the Silk Association of America, 1906, pages 68 and 104.

At this census an effort has been made to further classify the throwing equipment of the throwing plants into belt-driven spindles, band-driven high speed spindles, and band-driven step and bolster spindles for organzine first time over and second time over, and for tram spindles. The total number of commission throwing plants in 1905 was about 100. Replies were not received from all of the throwsters, but the information secured indicated that the belt-driven spindle predominates greatly in the plants of the commission throwsters. The relative proportion of the returns received was, approximately, belt-driven spindles, 75 per cent; band-driven high speed spindles, 24 per cent; and step and bolster spindles, not over 1 per cent. No attempt was made to secure a similar classification from the silk weaving mills which operate their own throwing plants. It has been found that the belt system gives more uniform twist and requires less attention than the band-driven frames, and the economy of the system favors its substitution for the old band-driven type.

During the past five years great progress has been made in perfecting throwing machinery, thereby improving the product both in quantity and quality, the constantly increasing wages having made it imperative that some such gains be made possible. Winding frames have been improved by introducing adjustable balanced swifts, improved take-up spindles, and redrawing attachments, all combining to make a more perfect spinning bobbin.

The combination process of making organzine by spinning, doubling, and twisting, and tram by doubling and twisting, in one operation, which was referred to in the Census report of 1900 as newly introduced, has been fully perfected, and many large establishments are now equipped entirely with this system. The combination process saves over the best style of the single processes, 33 per cent being gained in floor space

alone, and also enables the throwsters to employ a superior class of operatives at higher wages and thus to improve greatly the quality of the finished organzine and tram. These changes alone have done more to improve the product without a material increase in cost than all others combined since the introduction of the high speed Atwood spindle, twenty-five years previous.

The present high efficiency and superior quality of throwing machinery in the United States is acknowledged by the rest of the silk world and has contributed largely to the wonderful growth of the silk industry in this country.

Table 7 presents a summary, by states, of establishments reporting throwing spindles, classified according to the number reported.

TABLE 7.—ESTABLISHMENTS CLASSIFIED BY NUMBER OF THROWING SPINDLES, BY STATES: 1905.

STATE.	Number of establishments reporting throwing spindles.	ESTABLISHMENTS REPORTING—												Number of throwing spindles.	Per cent of increase in number of throwing spindles, 1900 to 1905.
		Under 2,500.	2,500 and under 5,000.	5,000 and under 7,500.	7,500 and under 10,000.	10,000 and under 12,500.	12,500 and under 15,000.	15,000 and under 20,000.	20,000 and under 25,000.	25,000 and under 40,000.	40,000 and under 45,000.	45,000 and under 50,000.	50,000 and over.		
United States.....	162	54	27	22	19	14	8	5	6	4	1	1	1	1,197,408	14.6
Pennsylvania.....	70	16	4	12	12	6	6	2	4	3	1	1	1	743,765	21.6
New Jersey.....	52	25	9	6	2	7	1	1	1					232,673	15.5
New York.....	13	1	5	3	1			2		1				102,428	112.6
Connecticut.....	8	5	1		1		1							28,172	15.0
Virginia.....	2				1				1					28,090	11.0
Massachusetts.....	5	2	1		1	1								22,390	128.5
North Carolina.....	3	2			1									11,266	16.4
Rhode Island.....	2	1		1										6,836	(2)
Michigan.....	1		1											4,902	344.0
Maine.....	1		1											4,760	81.5
Maryland.....	1		1											3,420	427.8
New Hampshire.....	1		1											3,408	(3)
Delaware.....	1		1											3,264	(3)
California.....	2	2												2,034	2,211.4

¹ Decrease.

² No throwing spindles reported in 1900.

³ Same number reported in 1900 and 1905.

The total number of accessory spindles, as shown in Table 25, is 1,256,180, an increase of 33.3 per cent since 1900. Of the total number of accessory spindles in 1905, 28.6 per cent were reported by commission throwing plants, and 71.4 per cent by all other silk mills.

Interchange of fibers in the textile industries.—The quantity of reeled silk yarns and spun silk yarns consumed by the textile industries of the United States other than the silk industry is shown for the censuses of 1890, 1900, and 1905 in Table 8.

TABLE 8.—Silk yarn used by cotton, wool, and hosiery and knit goods manufactures: 1890 to 1905.

INDUSTRY.	Census.	Total (pounds).	Reeled silk yarn (pounds).	Spun silk yarn (pounds).
Total.....	1905	1,221,586	638,092	583,494
	1900	1,147,270	574,922	572,348
	1890	427,269	277,157	150,112
Cotton manufactures ¹	1905	412,589	265,256	147,333
	1900	560,680	342,425	218,255
	1890	51,434	32,851	18,583
Wool manufactures ²	1905	488,326	202,578	285,748
	1900	320,343	70,073	250,270
	1890	255,494	166,709	88,785
Hosiery and knit goods.....	1905	320,671	170,258	150,413
	1900	266,247	162,424	103,823
	1890	120,341	77,597	42,744

¹ Includes cotton goods and cotton small wares.

² Includes worsted goods, woolen goods, carpets and rugs, felt goods, and wool hats.

The fact that the Census statistics show a decrease of 77,169 pounds in the quantity of reeled silk yarns

consumed by the cotton industry in 1905, as compared with 1900, and of 70,922 pounds of spun silk yarns, is a great surprise to silk manufacturers and to many cotton manufacturers. In view of the well-established fact that the manufacture of mixed cotton and silk cloths, especially in large cotton mills, has markedly increased in recent years, the following is believed to be a correct explanation of the seeming anomaly:

1. The figures for the census of 1905 are for the calendar year 1904.

2. In the year 1903 there was a great demand on the cotton mills for woven colored wash fabrics which were made from cotton warps, and silk stripes, and silk filling either partly or wholly. So great was the demand that it was supposed it would continue in 1904. Some of the large cotton mills acted on this supposition and made heavy stocks of similar goods, but early in 1904 a demand sprang up for plain white goods as a cheaper fabric and the striped goods became a drug on the market, resulting in great loss to some of the cotton mills. To illustrate, prices of these goods fell from 30 to 10 cents a yard. The movement in this direction was helped by the substitution of mercerized cotton yarn for silk, the price of mercerized cotton having materially declined since the year 1903, and the commercial result was a lessened consumption of silk yarns in the following year.

Fashion continued to favor the cotton converting trade in 1905 and since, but the demand for silk yarns

for silk warps or filling increased considerably in the last named year. This is corroborated by an independent inquiry made of the silk manufacturers and dealers, who are the chief sellers of silk yarns to cotton manufacturers. Their returns show conclusively that the aggregate sales of this character were over 50 per cent greater in the calendar year 1905 than in the calendar year 1904.

In other respects the Census figures indicate a constantly growing demand for reeled silk yarns and spun silk yarns by the knit goods trade, and of spun silk yarns by the wool industry. The above figures illustrate also the well-known fact that the business of legitimate silk manufacturers is being invaded with increasing success by a new class of competitors in the domestic textile industries.

Table 9 indicates the extent of the interchange of

fibers in the silk industry, and shows the quantity and cost of the different materials used in silk manufacture at the censuses of 1890, 1900, and 1905, with the per cent which each item forms of the total.

The total cost of all materials consumed by the silk industry at this census increased \$13,454,523, or 21.6 per cent, over the year 1900. Reeled silk increased 18.6 per cent in quantity, spun silk, 25.9 per cent, and artificial silk nearly seventy-six fold. The great increase in the consumption of artificial silk is accounted for by its adaptability for braids and fringes, dress trimmings, millinery trimmings, etc. The consumption of cotton yarns by the silk industry increased 30.1 per cent in quantity and has reached a total of 8,387,048 pounds; mercerized cotton yarns increased 187.1 per cent; woolen yarns, 85.1 per cent; mohair yarns, 32 per cent; and other yarns, 20.8 per cent.

TABLE 9.—MATERIALS USED, BY KIND, QUANTITY, AND COST, WITH PER CENT OF TOTAL: 1890 TO 1905.

	MATERIALS USED.						PER CENT OF TOTAL.					
	Pounds.			Cost.			Pounds.			Cost.		
	1905	1900	1890	1905	1900	1890	1905	1900	1890	1905	1900	1890
Total.....	27,007,459	22,507,488	17,409,054	\$75,861,188	\$62,406,665	\$51,004,425	100.0	100.0	100.0	100.0	100.0	100.0
Silk materials.....	17,276,690	15,390,760	11,784,094	65,991,534	55,686,895	46,351,200	64.0	68.4	67.7	87.0	89.2	90.9
Textile yarns other than silk.....	9,730,769	7,116,728	5,624,960	3,713,794	2,406,354	2,327,684	36.0	31.6	32.3	4.9	3.9	4.6
Cotton yarn.....	8,387,048	6,444,208	(¹)	2,586,954	1,830,550	(¹)	31.1	28.6	.....	3.4	2.9	.....
Mercerized cotton yarn.....	631,247	219,861	(¹)	471,035	165,683	(¹)	2.3	1.0	.....	0.6	0.3	.....
Woolen yarn.....	443,155	239,461	(¹)	409,867	167,770	(¹)	1.6	1.1	.....	0.5	0.3	.....
Mohair yarn.....	138,389	104,810	(¹)	137,097	107,365	(¹)	0.5	0.4	.....	0.2	0.2	.....
Other yarns.....	130,930	108,388	(¹)	108,841	134,986	(¹)	0.5	0.5	.....	0.2	0.2	.....
All other materials, cost.....	.....	.....	.....	6,155,860	4,313,416	2,325,541	.....	.....	.....	8.1	6.9	4.5

¹ Not reported separately in 1890.

Sewing silk and machine twist.—The making of sewing silk became a household industry in New England, chiefly in Massachusetts and Connecticut, in the first half of the last century. The invention of the sewing machine developed a demand for machine twist, a silk thread specially suited for use in sewing machines, and first applied to that purpose in February, 1852.

The following tabular statement illustrates the growth of the sewing silk and machine twist branch of the industry, omitting fringe and floss silks, at the several census periods since 1850:

CENSUS.	Pounds.	Value.	Per cent of increase in quantity.
1905.....	1,539,355	\$9,449,009	5.0
1900.....	1,465,575	9,274,800	30.9
1890.....	¹ 1,119,825	7,068,213	41.5
1880.....	1,791,525	6,783,855	53.2
1870.....	516,621	(²)	26.2
1860.....	409,429	(²)	.....
1850.....	(²)	³ 1,209,426	.....

¹ Sewing silk and machine twist only.

² Not reported separately.

³ All sewing silk; machine twist first made in 1852.

New England continues in the lead in the production of sewing silk and machine twist, Connecticut alone contributing 50.8 per cent and Massachusetts 25.7 per cent in 1905 of the total production. The steady growth of this branch of the silk industry, as shown in the above statement, up to 1900, and which continued through the years 1901, 1902, and 1903, practically came to a halt in 1904. As a matter of fact, the consumption of raw silk for spool silks and skein silks was actually less in 1904 than it was in any one of the years from 1901 to 1903. Manufacturers of cheaper grades of boots and shoes and clothing began to substitute mercerized cotton thread for silk. To illustrate the volume of business in this line of production, it is estimated that to operate the sewing machines in the United States requires more than 25,000 miles in length of spool silk daily. The manufacturing trade consumes about two-thirds of the output of spool silk and the retail dressmaking trade about one-third.

The partial supplanting of reeled silk threads by inferior and cheaper sewing materials is an undoubted fact and has contributed somewhat to the reduction

in selling value of machine twist and sewing silks. The average value per pound of machine twist for 1905 shows a reduction of 2.5 per cent, and of sewing and embroidery silks a reduction of 5.6 per cent, as compared with 1900. In addition to the competition caused by the substitution of materials above referred to, competition among the silk manufacturers themselves in naming low selling prices did the rest. While lively competition continues among the silk manufac-

turers as to prices, it may be said, however, that the silk trade is a unit in the belief that the use of mercerized cotton yarns for high class manufacturing in the clothing and boot and shoe trade is but a temporary and a more or less unsatisfactory expedient.

Table 10 shows the quantity and value of machine twist, sewing, embroidery, and wash silks, and fringe and floss silks produced, as reported at the censuses of 1900 and 1905.

TABLE 10.—MACHINE TWIST, SEWING, AND FRINGE AND FLOSS SILKS—QUANTITY AND VALUE OF PRODUCTION, BY STATES: 1905 AND 1900.

STATE.	Cen- sus.	Total pounds, less fringe and floss, used as material.	MACHINE TWIST.		SEWING, EMBROID- ERY, AND WASH SILKS.		FRINGE AND FLOSS.		Fringe and floss used as material (pounds).
			Pounds.	Value.	Pounds.	Value.	Pounds.	Value.	
United States.....	1905	1,694,898	932,998	\$5,521,055	606,357	\$3,927,954	205,354	\$697,062	49,811
	1900	1,659,234	987,917	5,997,974	477,658	3,276,826	261,643	971,390	67,984
Per cent of increase.....		2.1	5.6	18.0	26.9	19.9	21.5	128.2	
Connecticut.....	1905	782,434	614,729	3,618,824	167,485	953,636	220	1,122	
	1900	785,518	545,423	3,354,546	145,032	977,213	95,806	217,043	743
Per cent of increase.....		0.4	12.7	7.9	15.5	12.4	199.8	199.5	
Massachusetts.....	1905	402,942	134,256	746,296	202,076	1,852,108	6,610	34,906	
	1900	459,953	269,241	1,413,004	170,423	1,246,445	20,964	147,773	675
Per cent of increase.....		112.4	150.1	147.2	53.8	48.6	168.5	176.4	
New York.....	1905	53,330	35,325	191,628	12,960	77,752	12,125	70,056	7,080
	1900	44,422	46,500	240,405	18,528	113,468			20,606
Per cent of increase.....		20.1	124.0	120.3	130.1	131.6			
Pennsylvania.....	1905	150,816	28,223	196,409	49,480	296,884	106,073	344,173	32,960
	1900	211,486	43,476	285,288	74,475	451,800	128,262	542,130	34,727
Per cent of increase.....		128.7	135.1	131.2	133.6	134.3	117.3	136.5	
All other states.....	¹ 1905	305,376	120,465	767,898	114,356	747,574	80,326	246,805	9,771
	¹ 1900	157,855	83,277	704,731	69,200	487,900	16,611	64,444	11,233
Per cent of increase.....		93.5	44.7	9.0	65.3	53.2	383.6	283.0	

¹ Decrease.

² Includes states as follows: California, Illinois, Michigan, and New Jersey.

³ Includes states as follows: California, Illinois, Michigan, New Jersey, and Rhode Island.

Broad silk production.—The increase in the production of piece-dyed goods since the census of 1900 has been notable. All-silk, piece-dyed goods have increased from 7,331,501 yards, average value 45.6 cents per yard, in 1900, to 21,334,584 yards, average value of 43.5 cents per yard, in 1905. Silk mixed, piece-dyed goods have increased from 8,558,884 yards, average value 33.5 cents per yard, in 1900, to 15,603,353 yards, average value of 28.2 cents per yard, in 1905. The main increases in the all-silk, piece-dyed output have been—in Pennsylvania, from 1,775,255 to 7,325,103 yards; in New Jersey, from 1,694,675 to 3,874,771 yards; in Connecticut, from 3,371,127 to 4,959,991 yards. The same states increased their output of silk mixed piece-dyed goods, as follows: Pennsylvania, from 5,562,097 to 8,461,557 yards; New Jersey, from 381,000 to 1,331,233 yards; Connecticut, from 147,833 to

582,580 yards. The greatest increase in the output of silk mixed, piece-dyed goods since the census of 1900 occurred in Rhode Island. New York shows a surprising change in the relative production of the two classes of piece-dyed goods at the two censuses, the following being the figures:

Piece-dyed goods, for New York: 1905 and 1900.

CENSUS.	TOTAL.		ALL-SILK.		SILK MIXED.	
	Yards.	Value.	Yards.	Value.	Yards.	Value.
1905.....	4,275,669	\$1,910,789	4,272,422	\$1,906,468	3,247	\$4,321
1900.....	2,469,570	1,124,050	22,000	84,561	2,447,570	1,039,489

The localities where piece-dyed goods have been chiefly manufactured in 1905 and 1900 are indicated in Table 11.

TABLE 11.—PRODUCTION OF PIECE-DYED SILKS, BY STATES: 1905 AND 1900.

STATE.	ALL-SILK (YARDS, SINGLE WIDTH).				SILK MIXED (YARDS, SINGLE WIDTH).			
	1905	1900	Increase.	Per cent of increase.	1905	1900	Increase.	Per cent of increase.
Total.....	21,334,584	7,331,501	14,003,083	191.0	15,603,353	8,558,884	7,044,469	82.3
Connecticut.....	4,959,991	3,371,127	1,588,864	47.1	582,580	147,833	434,747	294.1
New Jersey.....	3,874,771	1,694,675	2,180,096	128.6	1,331,233	381,000	950,233	249.4
New York.....	4,272,422	22,000	4,250,422	19,320.1	3,247	2,447,570	12,444,323	199.9
Pennsylvania.....	7,325,103	1,775,255	5,549,848	312.6	8,461,557	5,522,097	2,899,460	52.1
All other states ²	902,297	468,444	433,853	92.6	5,224,736	20,384	5,204,352	25,531.5

¹ Decrease.² Includes states as follows: 1905—Maryland, Massachusetts, Michigan, Ohio, and Rhode Island. 1900—Maryland, Massachusetts, and Virginia.

The domestic production of velvets has increased from 5,122,249 yards in 1900 to 7,262,315 yards in 1905; the output of plushes has decreased from 3,848,684 yards in 1900 to 2,547,367 yards in 1905.

Tapestry and upholstery fabrics are the only kinds of broad goods in the silk schedules of 1905 that have advanced in price since the census of 1900; namely, tapestry, from 56 cents a yard to 83.3 cents; upholstery, from 52 cents to 98.8 cents per yard.

Table 12 presents, in detail, the production of silk

broad goods by yardage, value, and average value per yard for the United States for the census of 1905.

Assuming that the first three classified items in Table 12 constitute the domestic production of silk dress goods in the United States, and estimating the value of foreign imports of dress goods fabrics (duty paid) at \$25,000,000, we find the American consumption of silk dress goods fabrics to be \$92,000,000, of which 72.8 per cent were made in the United States, compared with 67.3 per cent at the census of 1900.

TABLE 12.—PRODUCTION OF SILK BROAD GOODS, BY CLASSES: 1905.

CLASS.	TOTAL.			ALL-SILK.			SILK MIXED.		
	Yards, single width.	Value.	Average value per yard (cents).	Yards, single width.	Value.	Average value per yard (cents).	Yards, single width.	Value.	Average value per yard (cents).
Total.....	136,447,107	\$72,979,765	53.5	97,870,717	\$55,944,988	57.2	38,576,390	\$17,034,777	44.2
Broad silks:									
Plain and fancies.....	77,454,067	46,084,952	59.5	68,393,042	40,741,480	59.6	9,061,025	5,343,472	59.0
Jacquards.....	10,479,211	7,156,711	68.3	8,143,091	5,927,063	72.8	2,336,120	1,229,648	52.6
Piece-dyed.....	36,937,937	13,676,099	37.0	21,334,584	9,276,445	43.5	15,603,353	4,399,654	28.2
Velvets.....	7,262,315	3,161,206	43.5				7,262,315	3,161,206	43.5
Plushes.....	2,547,367	1,340,815	52.6				2,547,367	1,340,815	52.6
Tapestry.....	1,193,326	994,036	83.3				1,193,326	994,036	83.3
Upholstery.....	572,884	565,946	98.8				572,884	565,946	98.8

The development of silk broad goods weaving in the United States is well illustrated by a comparison of the production of such goods in each census year since 1870. The following tabular statement presents the yardage, the value, and the per cent of increase at the periods mentioned. All goods of which silk is the material of chief value and which are woven on broad looms are included:

CENSUS.	Yards, single width.	Value.	Per cent of increase in quantity.
1905.....	136,447,107	\$72,979,765	39.3
1900 ¹	97,940,935	58,122,622	160.1
1890.....	37,648,220	29,809,108	246.8
1880.....	10,856,284	11,224,895	957.7
1870.....	1,026,422	(²)	.....

¹ The census of 1900 separates the yardage and value as follows: All-silk, 68,437,218 yards, valued at \$42,573,279; silk mixed, 29,503,717 yards, valued at \$15,549,343.

² Not reported separately.

The production of all-silk broad goods reported at the census of 1905 (97,870,717 yards) is 43 per cent greater in quantity than in 1900 and the production of silk mixed broad goods is 30.8 per cent greater.

At the census of 1900 power looms used on broad goods numbered 36,825, classified as follows:

Plain looms, 36 inches or over, reed space.....	13,077
Plain looms, under 36 inches, reed space.....	16,161
Jacquard broad looms.....	7,587

At the present census they number 50,252, an increase of 36.5 per cent, and are in detail as follows:

Plain looms, 36 inches or over, reed space, 26,338, an increase of over 101.4 per cent.

Plain looms, under 36 inches, reed space, 18,022, an increase of 11.5 per cent.

Jacquard broad looms, 5,892, a decrease of 22.3 per cent.

During the year 1905, immediately following the census year, 4,439 new broad fabric power looms were

supplied to the silk mills of the United States by our domestic loom builders.¹

The advancement and the improvement of the power loom during the past five years have not, perhaps, shown as many additions and new attachments as during the few years preceding, but the number of improvements in all the working parts has been much greater, with the result of not only increasing the output but also producing a much better grade of cloth. The silk loom of to-day is so built that labor of ordinary skill is able to operate the loom and bring out good results. The dobby multiplier and all the other parts and motions mentioned in the Census report of 1900 are still in use, but, as stated above, have been materially changed, with very satisfactory results.

Among the new attachments may be mentioned the two-weave motion for the Gem silk loom. This was previously confined to the dobby loom and will prove of great value in increasing the variety of weaves of cloths that can be produced on this same loom. There has also been added a graduating tension roll which gives more uniform tension on the cloth, and

¹ Thirty-fourth Annual Report of the Silk Association of America, 1906, pages 68 and 104.

therefore improves the quality of the goods; also a device for disconnecting the lower cloth roll from the take-up roll, so that in taking the cloth from the loom it is not necessary to disturb the tension, thereby insuring uniform goods. Another addition has been the patent temple for holding the goods to a proper width. This is a very important improvement to the loom and is the result of years of experimenting, as it was found very difficult to produce a temple that would in no way mark or injure the cloth. There has also been added a very important attachment in the shape of a shuttle check. This prevents the shuttle from rebounding after entering the box, thereby making more nearly perfect goods, particularly by preventing kinks in the filling.

Table 13 indicates the states where the principal changes in the loom equipment for broad and narrow fabrics have taken place in the industry since the census of 1900.

Table 14 presents a summary, by states, of establishments classified according to the number of looms operating on broad silks, not including velvets, plushes, tapestries, and upholstery goods, for the census of 1905.

TABLE 13.—POWER LOOMS IN SILK MILLS, BY STATES: 1905 AND 1900.

STATE.	Census.	Aggregate.	ON BROAD SILKS, INCLUDING VELVETS, ETC. (NUMBER).				ON NARROW FABRICS (NUMBER).			
			Total.	36 inches or over, reed space.	Under 36 inches, reed space.	Jacquard.	Total.	High-speed ribbon.	German ribbon (warps on top).	Jacquard.
United States.....	1905	59,775	50,252	26,338	18,022	5,892	9,523	3,966	3,875	1,682
	1900	44,257	36,825	13,077	16,161	7,587	7,432	2,105	4,471	856
Per cent of increase.....		35.1	36.5	101.4	11.5	122.3	28.1	88.4	113.3	96.5
Connecticut.....	1905	4,260	3,500	2,194	885	421	760	303	105	352
	1900	2,975	2,681	1,660	777	244	294	194	95	5
Per cent of increase.....		43.2	30.5	32.2	13.9	72.5	158.5	56.2	10.5	6,940.0
Massachusetts.....	1905	1,581	1,437	945	492	.....	144	144	.....	.....
	1900	1,017	873	451	422	.....	144	.....	144	.....
Per cent of increase.....		55.5	64.6	109.5	16.6	.....	.....	.....	.....	.....
New Jersey.....	1905	23,923	19,905	8,851	6,913	4,141	4,018	1,631	1,710	677
	1900	20,557	17,641	4,573	7,282	5,786	2,916	882	1,601	433
Per cent of increase.....		16.4	12.8	93.5	15.1	128.4	37.8	84.9	6.8	56.4
New York.....	1905	6,944	4,716	2,581	1,753	382	2,228	932	1,073	223
	1900	5,175	2,933	1,510	1,175	248	2,242	425	1,594	223
Per cent of increase.....		34.2	60.8	70.9	49.2	54.0	10.6	119.3	132.7	.....
Pennsylvania.....	1905	19,227	16,899	8,679	7,272	948	2,328	942	971	415
	1900	12,920	11,135	3,709	6,166	1,260	1,785	604	986	195
Per cent of increase.....		48.8	51.8	134.0	17.9	124.8	30.4	56.0	11.5	112.8
Rhode Island.....	1905	1,706	1,706	1,626	80	.....	.....	.....	.....	.....
	1900	533	533	465	68	.....	.....	.....	.....	.....
Per cent of increase.....		220.1	220.1	249.7	17.6	.....	.....	.....	.....	.....
All other states.....	² 1905	2,134	2,089	1,462	627	.....	45	14	16	15
	³ 1900	1,080	1,029	709	271	49	.....	.....	51	.....
Per cent of increase.....		97.6	103.0	106.2	131.4	.....	111.8	.....	168.6	.....

¹ Decrease.

² Includes states as follows: California, Delaware, Illinois, Maine, Maryland, Michigan, New Hampshire, North Carolina, Ohio, and Virginia.

³ Includes states as follows: California, Delaware, Illinois, Maine, Maryland, Michigan, New Hampshire, North Carolina, and Virginia.

TABLE 14.—BROAD SILK WEAVING MILLS,¹ CLASSIFIED BY NUMBER OF BROAD LOOMS, BY STATES: 1905.

STATE.	Number of establishments reporting broad looms.	ESTABLISHMENTS REPORTING—								NUMBER OF BROAD LOOMS.		
		Under 50.	50 and under 150.	150 and under 250.	250 and under 500.	500 and under 750.	750 and under 1,000.	1,000 and under 1,250.	1,250 and over.	1905	1900	Per cent of increase.
United States.....	305	107	92	44	42	11	4	2	3	49,534	35,446	39.7
New Jersey.....	150	66	48	12	16	6	1		1	19,844	17,552	13.1
Paterson.....	117	61	36	9	8	3				10,971	10,475	4.7
Outside of Paterson.....	33	5	12	3	8	3	1		1	8,873	7,077	25.4
Pennsylvania.....	87	21	27	15	17	3	3		1	16,961	10,662	59.4
New York.....	35	11	9	12	2	1				4,761	2,867	66.0
Connecticut.....	9	1	3	1	3				1	2,666	1,894	40.8
Rhode Island.....	5	2			2			1		1,706	533	220.1
Massachusetts.....	7	3	2	1				1		1,466	896	63.6
New Hampshire.....	1					1				54	209	184.2
Virginia.....	1				1					323	147	119.7
Michigan.....	1				1					268	62	332.3
Delaware.....	2		2							234	191	22.5
Ohio.....	1			1						206		
Maryland.....	1			1						200	144	38.9
Maine.....	1			1						150	120	25.0
North Carolina.....	1		1							100	125	20.0
California.....	2	2								13	2	550.0
Illinois.....	1	1								12	34	64.7
Utah.....											8	

¹ Exclusive of velvets, plushes, tapestries, and upholstery goods.² Decrease.

Ribbons and narrow fabrics.—The silk ribbon mills of the United States possess power loom equipment sufficient to supply any commercial demand that may be made upon them for any article of ribbon known to the trade. The progress of this branch of the industry since 1880 is shown in the following tabular statement:

CENSUS.	Value of products.
1905.....	\$21,890,604
1900.....	18,467,179
1890.....	17,081,447
1880.....	6,023,100

The per cent of increase over 1900 is 18.5 in value of production, and 28.1 in power of production. The relative equipment of power looms at the two periods was as follows:

Power ribbon looms: 1905 and 1900.

	1905	1900	Per cent of increase.
Total.....	9,523	7,432	28.1
German (warps on top).....	3,875	4,471	113.3
High speed.....	3,966	2,105	88.4
Jacquards.....	1,682	856	96.5

¹ Decrease.

During the year 1905, immediately following the census, additional narrow fabric looms were supplied to the silk ribbon mills of the United States as follows:¹

Total.....	911
Ribbons, high speed automatic.....	129
Ribbons, high speed automatic double deck.....	421
German looms.....	46
Web looms, elastic webbing.....	67
Web looms, nonelastic webbing.....	248

¹ Thirty-fourth Annual Report of the Silk Association of America, 1906, pages 68 and 104.

One of the most notable features in the development of the ribbon manufacturing industry within recent years, is the forging to the front of the double deck batten. At the present time this style of batten has almost superseded the circular batten. Out of 100 battens that are built to-day there are 90 double deckers to 10 circulars. The advantage to be derived from this style of batten is, principally, the securing of an increased number of shuttles, thus insuring larger production.

An interchangeable high speed loom has also been perfected, which is so arranged that the loom may easily be changed from wide to narrow, or from narrow to wide spaces. In effecting this improvement many of the wooden parts have been replaced by metal ones, so that practically the only wood in the loom at present is that used in the shuttles and blocks, even the bed of the batten being made of iron. These looms are so constructed that they can be made of any length and yet run at a reasonably high rate of speed.

Early in the year 1903 a practically new era was inaugurated in the manufacture of narrow silk fabrics by the development of the silk label industry. The demand for silk labels has been steadily maintained, and the production of this class of goods is now one of the most important and promising branches of the silk industry. The label loom is usually about 20 feet in length, is cut in halves (each half working independently of the other), and is generally furnished with battens containing two or more banks of shuttles, and also with double lift top Jacquard machines.

Other improvements are:

1. The cut gear take-up motion, in which the gears are cut from solid stock. With this motion no calculation is required, one tooth in the ratchet giving one

pick in the goods, and absolute accuracy is maintained from the beginning of the piece to the end.

2. The parallel lathe motion, which is one of the most important advances ever made on quick running looms. This motion keeps the batten upright at every point of its stroke, which is very necessary in order to get good work and rapid production.

3. The elliptical gear shuttle motion and double acting side Jacquard machine, which is so constructed as to give practically a continuous rotary motion. It gives the softest, smoothest, and most delicate movement to the shuttles, and saves wear and tear on the batten. The Jacquard machine will handle the most tender warps with ease and safety. These attachments greatly increase the production as well as improve the product of the looms. Old looms equipped with the Jacquard machine and shuttle motion gain thereby from 15 to 25 picks per minute.

4. Adjustable breast beam brackets form another important feature in modern loom equipment. These are made vertically adjustable, and permit the top shed to be raised or lowered into the proper position for the shuttle to weave freely. This has been impossible heretofore, as the top row of glass was rigidly placed and not movable, resulting in the shuttle dragging through the shed, and thus causing undue trouble and wear in weaving.

There has also been a great advance within the last few years in the construction of web looms for the manufacture of suspender webs and the like, and the American loom manufacturers have, as usual, been found prepared to meet the demands of the trade. This class of loom, which is outside of the distinctively ribbon loom, is run more or less all the time, and uses silk filling during some parts of the year. The operator of these looms makes various grades of garter web and suspender web, some all silk webs, some cotton and some part silk and cotton. Among the noteworthy features of such looms should be mentioned cut cams, which constitute one of the most important developments in web looms in recent years, enabling the looms to be run much faster than with the old cast cams, and being vastly superior to them in every way.

At the St. Louis Exposition in 1904 one of the most progressive silk ribbon establishments in the United States, which was awarded a grand prize for its exhibit of silk and satin ribbons, exhibited also a double deck Jacquard ribbon loom of its own construction for which it received a gold medal award.

Finished silk goods.—Table 15 indicates the production by quantities (yardage and pounds), so far as is possible, of the different kinds of finished products, exclusive of duplication, in the census years 1900 and 1905. Comparison of production in censuses prior to 1900 is difficult as to some special articles, because

the former system of classifying production by the commercial designation of fabrics was abandoned, and the present system was introduced in the year 1900.

TABLE 15.—*Finished goods: 1905 and 1900.*

	1905		1900	
	Quantity.	Value.	Quantity.	Value.
Total value.....		\$118,533,500		\$92,451,212
	<i>Pounds.</i>		<i>Pounds.</i>	
Machine twist.....	932,998	5,521,055	987,917	5,997,974
Sewing, embroidery, and wash silks.....	606,357	3,927,954	477,658	3,276,826
Fringe and floss silks.....	155,543	509,903	193,659	690,982
	<i>Yards.</i>		<i>Yards.</i>	
Broad goods, total.....	136,447,107	72,979,765	97,940,935	58,122,622
Broad silks, all-silk, and silk mixed:				
Plain and fancies.....	77,454,067	46,084,952	62,536,803	39,302,821
Jacquards.....	10,479,211	7,156,711	9,209,695	6,639,322
Piece-dyed.....	36,937,937	13,676,099	15,890,385	6,210,673
Velvets.....	7,262,315	3,161,206	5,122,249	2,479,903
Plushes.....	2,547,367	1,340,815	3,848,684	2,480,068
Upholstery and tapestry.....	1,766,210	1,559,982	1,333,119	1,009,835
Ribbons.....		21,890,604		18,467,179
Laces, nets, veils, veiling, etc.....		745,439		803,104
Embroideries.....		112,362		57,625
Braids and bindings.....		3,493,977		1,522,565
Dress, cloak, millinery, and military trimmings, including fringes and gimps.....		4,124,651		2,295,010
All other products.....		5,227,800		1,211,325

There have been general increases in all the classes of the silk industry with the one exception of silk laces, nets, veils, veiling, etc. These increases have been referred to, and their percentages noted, in the subdivisions of this report dealing particularly with the several branches of the silk industry in the United States.

Silk lace manufacturing in the United States has always had a serious drawback in the difficulty of obtaining expert labor. New machinery and constantly improving methods of manufacture require experienced labor which only the older lace manufacturing centers abroad can furnish, but which conditions in the United States have made it difficult for the manufacturer to obtain. Even in the staple branches of silk manufacturing, in which home labor has been trained, the scarcity of expert workmen often prevents the domestic manufacturer from insisting upon such qualities of workmanship as would be demanded abroad. The silk lace branch of the industry is handicapped to some extent by the limitations of the contract labor law of the United States, and by the tendency toward the greater use of cotton and linen laces of elaborate design and high quality.

In embroideries the same tendency is marked, the amount of finished silk embroidery of domestic manufacture (apart from embroidery silk and yarns) consumed in proportion to cotton embroideries being small. Considerable impetus has been given to the cotton embroidery industry since the census of 1900, and the making of so-called "Swiss embroidery" by

power machinery has been considerably extended in the United States. The state of New York leads in the manufacture of silk lace and finished silk embroidery, while New Jersey leads New York in the manufacture of silk nets, veils, and veiling.

COMPARATIVE STATISTICS BY STATES.

Table 16 is a comparative summary, by states, from 1880 to 1905, of the data reported under the principal heads of the inquiry relating to silk manufactures.

TABLE 16.—COMPARATIVE SUMMARY, BY STATES: 1880 TO 1905.

STATE.	Cen- sus.	Num- ber of estab- lish- ments.	Capital.	SALARIED OFFICIALS, CLERKS, ETC.		WAGE-EARNERS AND WAGES.							Miscella- neous ex- penses.	Cost of materials used.	Value of products, including amount re- ceived for contract work.	Number of spindles.	NUMBER OF LOOMS.		
				Num- ber.	Salaries.	Average num- ber.	Wages.	Average number.			Total.	Power.					Hand.		
								Men 16 years and over.	Wom- en 16 years and over.	Child- ren under 16 years.									
United States.	1905	624	\$109,556,621	4,027	\$4,742,270	79,601	\$26,767,943	27,037	45,198	7,366	\$14,052,777	\$75,861,188	\$133,288,072	2,453,588	60,058	59,775	283		
	1900	483	81,082,201	2,657	3,134,352	65,416	20,982,194	24,206	34,797	6,413	10,264,208	62,406,665	107,256,258	1,987,404	44,430	44,257	173		
	1890	472	51,007,537	1,531	1,917,877	49,382	17,762,441	17,602	28,914	2,866	4,259,623	51,004,425	87,298,454	1,087,395	22,569	20,822	1,747		
	1880	382	19,125,300	(2)	(2)	31,337	9,140,705	9,375	16,396	5,566	(2)	22,467,701	41,033,045	426,530	8,474	5,321	3,153		
California.....	1905	4	229,674	10	11,924	136	44,050	20	108	8	7,093	217,068	351,949	3,846	15	3	12		
	1900	5	308,847	6	4,998	117	33,055	24	91	2	4,113	146,219	255,902	3,380	2	2			
	1890	9	112,283	11	15,276	203	68,290	49	152	2	10,438	146,406	271,912	2,817	36	1	35		
	1880	5	164,300			151	41,400	20	106	25		80,995	159,175	350	24		24		
Connecticut.....	1905	43	16,675,954	327	479,213	7,792	3,124,394	3,306	4,187	299	969,658	9,098,196	15,623,693	196,624	4,260	4,260			
	1900	38	12,166,773	323	403,423	6,514	2,392,873	2,763	3,585	166	637,450	7,198,008	12,378,981	160,743	2,975	2,975			
	1890	35	9,037,042	117	159,273	4,964	1,847,531	1,540	3,301	123	270,426	6,201,876	9,788,951	129,664	1,378	1,372	6		
	1880	28	4,436,500			3,428	1,026,530	785	1,990	653		3,311,206	5,881,000	88,825	615	603	12		
Illinois.....	1905	3	390,672	25	31,342	524	135,579	50	436	38	35,444	486,015	735,242	11,880	104	44	60		
	1900	4	259,540	33	51,183	412	121,644	81	310	21	42,410	187,514	421,088		34	27	7		
	1890	10	422,096	49	54,314	756	241,322	157	589	10	35,761	314,855	785,845	732	126	44	82		
	1880	5	82,000			259	72,195	67	135	57		125,895	244,150		64	13	51		
Maryland ⁴	1890	4	50,400	3	3,600	72	20,633	28	44		3,798	34,305	100,361	6	14	14			
	1880	4	20,900			82	11,000	12	56	14		15,760	35,415		39		39		
Massachusetts..	1905	18	5,323,041	126	142,176	3,261	1,162,118	1,042	2,012	207	513,096	4,156,919	7,012,062	107,787	1,610	1,581	29		
	1900	20	5,649,758	156	227,276	3,110	1,110,324	1,102	1,837	171	382,745	3,823,963	5,957,532	107,312	1,040	1,017	23		
	1890	20	3,353,296	223	258,115	2,993	1,038,284	977	1,928	88	484,390	3,251,893	5,557,569	81,435	540	444	96		
	1880	22	1,306,900			1,826	521,725	353	1,285	188		1,990,515	3,764,260	30,450	241	88	153		
New Jersey.....	1905	239	33,644,098	1,278	1,555,662	25,481	9,892,804	11,361	12,947	1,173	6,045,201	22,339,447	42,862,907	527,409	23,935	23,923	12		
	1900	180	29,285,792	959	1,144,512	24,157	9,232,532	11,279	11,679	1,199	4,896,595	21,631,118	39,966,662	536,065	20,572	20,557	15		
	1890	132	16,849,927	472	541,570	17,445	6,634,610	7,773	8,773	899	1,356,137	17,908,883	30,760,371	359,364	11,724	11,487	237		
	1880	106	6,932,325			12,549	4,177,745	4,696	5,360	2,493		9,678,536	17,122,230	210,783	4,553	2,956	1,597		
New York.....	1905	123	15,751,246	969	1,103,792	11,283	4,267,867	3,664	7,211	408	2,614,112	10,490,474	20,181,212	251,367	6,989	6,944	45		
	1900	92	9,800,207	363	514,439	7,861	2,661,818	3,149	4,299	413	1,601,527	6,570,037	12,706,246	136,703	5,208	5,175	93		
	1890	185	11,165,918	432	601,336	12,719	4,983,063	4,456	7,983	280	1,123,671	10,174,818	19,417,795	154,969	4,940	3,888	1,052		
	1880	151	4,696,775			9,633	2,590,025	2,405	5,459	1,769		5,331,804	10,170,140	67,271	2,086	1,065	991		
North Carolina ⁵	1900	3	130,376	11	3,455	209	25,420	35	119	55	5,159	99,403	135,354	18,790	125	125			
Ohio ⁶	1890	3	37,830	4	2,512	36	11,173		28		2,662	13,983	33,927	96	16		16		
	1880	6	24,700			135	12,550	21	73	41		19,495	53,110		22		22		
Pennsylvania....	1905	168	31,312,386	1,192	1,300,068	26,915	6,972,852	6,318	15,863	4,734	3,472,624	24,267,122	39,333,520	1,203,617	19,336	19,227	109		
	1900	121	20,894,023	745	718,776	21,028	4,629,626	5,214	11,565	4,249	2,451,820	19,884,869	31,072,926	942,545	12,949	12,420	29		
	1890	66	9,362,063	192	256,049	9,330	2,725,285	2,420	5,617	1,293	939,051	12,064,389	19,357,546	318,215	3,583	3,560	223		
	1880	49	1,379,970			3,189	678,120	1,000	1,870	319		1,830,985	3,491,840	25,241	828	500	262		
Rhode Island ⁷ ..	1905	8	2,651,633	31	41,254	1,291	479,991	436	699	156	116,294	1,695,950	2,555,986	22,644	1,706	1,706			
	1900	6	680,252	8	12,320	455	166,675	124	326	5	103,454	818,561	1,311,333	4,212	533	533			
	1890	3	122,256	8	8,507	186	53,471	49	107	30	17,427	149,763	229,062	3,393	43	43			
Virginia ⁸	1900	3	594,359	12	12,678	473	105,056	144	228	101	15,300	720,525	981,680	41,798	147	147			
All other states. ⁹	1905	18	3,377,297	78	76,839	2,918	688,288	840	1,735	343	279,255	3,109,997	4,631,501	128,414	2,163	2,087	16		
	1900	11	1,312,272	41	41,295	1,080	303,171	291	758	31	123,635	1,326,448	2,068,554	35,856	785	779	6		
	1890	5	534,426	20	17,325	678	138,779	145	392	141	15,862	713,254	995,114	36,704	169	169			
	1880	6	61,000			85	15,415	16	62	7		82,510	111,725	3,610	2		2		

¹Includes proprietors and firm members, with their salaries; number only reported in 1900 and 1905, but not included in this table.

²Not reported separately.

³Not reported.

⁴Included in "all other states" in 1905 and 1900.

⁵Included in "all other states" in 1905 and 1890. No establishments reported in 1880.

⁶Included in "all other states" in 1905. No establishments reported in 1900.

⁷Included in "all other states" in 1880.

⁸Includes establishments distributed as follows: Delaware, 2; Maine, 1; Maryland, 3; Michigan, 2; New Hampshire, 2; North Carolina, 3; Ohio, 2; Virginia, 3.

⁹Includes establishments distributed as follows: Delaware, 2; Maine, 1; Maryland, 2; Michigan, 2; New Hampshire, 2; Utah, 2.

¹⁰Includes establishments distributed as follows: Maine, 1; Michigan, 1; Missouri, 1; North Carolina, 1; Virginia, 1.

¹¹Includes establishments distributed as follows: Kansas, 1; Maine, 1; Missouri, 1; New Hampshire, 1; Rhode Island, 1; Vermont, 1.

According to the statistics New Jersey appears to be the leading silk state, but when the figures are analyzed Pennsylvania is in reality now the foremost silk

manufacturing state in the Union. This is a notable achievement when it is remembered that silk manufacture was started in Paterson, N. J., in 1840; that

marked impetus was given to the industry there by increased tariff rates on imported silk goods as one result of the Civil War; and that it has been reasonably successful in that silk center ever since. On the other hand, so late as the census of 1880, the amount of capital invested in the silk industry in Pennsylvania was only \$1,379,900; 3,189 wage-earners were employed, and wages paid amounted to \$678,120. In 1905 the amount of capital invested in Pennsylvania was \$31,312,386, and the wages paid to 26,915 wage-earners was \$6,972,852. Although the aggregate capital was 7.4 per cent greater for New Jersey than for Pennsylvania, the latter state shows a larger investment in several of the items of capital. The value of land owned in Pennsylvania was 30.4 per cent greater than in New Jersey, while the value of buildings was 77.6 per cent greater and the value of machinery, tools, and implements 14.3 per cent greater. In the item of cash and sundries New Jersey exceeds Pennsylvania by 44.9 per cent, but this is accounted for by the different characteristics of the industry in the respective states. For example, silk weaving is carried on more largely in New Jersey than in Pennsylvania, the former having 23,923 power loom equipment and the latter 19,227. The silk mills of New Jersey employed 79.8 per cent more men wage-earners than Pennsylvania, but the latter state employed 22.5 per cent more women and 303.6 per cent more children in her silk mills than the former.

On the other hand, Pennsylvania does more silk spinning than New Jersey, the statistics showing 743,765 throwing spindles in Pennsylvania and 232,673 throwing spindles in New Jersey. Less cash capital and a lower wage are required for the spinning branch of the industry than for the weaving branch.

The growing importance of Pennsylvania as a silk manufacturing state is emphasized by the fact that since 1900 silk manufacturing in one form or another has been introduced into 35 new places or towns, 14 of which represent new throwing plants, whereas in New Jersey the extension was to only 11 new places, 3 of which represent new throwing plants. Among the chief causes which influence the establishment of new silk mills, the enlargement of old plants or their removal from other localities are:

1. Liberal credits by capital, which is always ready—often too ready and too liberal—to promote enterprises of this character.

2. Abundance of suitable labor and relatively cheap fuel, as has been the case in the eastern part of Pennsylvania.

The leading counties in silk manufacture in New Jersey are Passaic, Hudson, Warren, and Morris. Passaic county includes Paterson, known as the premier silk city of the United States. The statistics for Passaic county for the census of 1905 are shown in Table 17.

TABLE 17.—*Passaic county, N. J.—silk and silk goods: 1905.*

	1905	Per cent of total for state of New Jersey.
Number of establishments.....	195	81.6
Capital.....	\$20,395,331	60.6
Salaried officials, clerks, etc., number.....	807	63.1
Salaries.....	\$995,692	64.0
Wage-earners, average number.....	15,673	61.5
Wages.....	\$6,470,992	65.4
Miscellaneous expenses.....	\$3,755,240	61.8
Materials used, total cost.....	\$13,624,731	61.0
Silk—		
Raw—		
Pounds.....	2,191,917	61.7
Cost.....	\$8,298,973	59.6
Spun—		
Pounds.....	81,562	52.9
Cost.....	\$192,317	56.3
Artificial—		
Pounds.....	3,266	40.5
Cost.....	\$13,474	38.4
Yarns, other than silk—		
Cotton—		
Pounds.....	835,296	79.2
Cost.....	\$315,061	78.3
Mercedized cotton—		
Pounds.....	204,981	78.3
Cost.....	\$157,910	75.8
Woolen—		
Pounds.....	4,875	19.0
Cost.....	\$8,559	30.6
Mohair—		
Pounds.....	13	0.1
Cost.....	\$18	0.3
Other—		
Pounds.....	3,638	100.0
Cost.....	\$3,638	100.0
Silk purchased in partially manufactured form—		
Organzine and tram—		
Pounds.....	848,512	63.2
Cost.....	\$3,607,809	62.9
Fringe and floss—		
Pounds.....	2,703	62.5
Cost.....	\$11,681	49.3
All other materials.....	\$954,791	11.9
Raw silk thrown under contract:		
Organzine, pounds.....	467,582	66.6
Tram, pounds.....	780,102	79.0
Products, total value.....	\$26,906,101	12.8
Organzine and tram made for sale—		
Pounds.....	23,714	13.9
Value.....	\$86,320	11.1
Fringe and floss—		
Pounds.....	28,546	94.7
Value.....	\$83,005	87.4
Broad silk goods—		
Plain and fancies—		
All-silk—		
Yards, single width.....	13,933,077	42.3
Value.....	\$8,608,086	45.2
Silk mixed—		
Yards, single width.....	1,413,588	77.6
Value.....	\$1,169,858	85.4
Jacquard—		
All-silk—		
Yards, single width.....	4,283,349	78.2
Value.....	\$3,226,047	73.5
Silk mixed—		
Yards, single width.....	798,875	65.5
Value.....	\$434,825	58.0
Piece-dyed—		
All-silk—		
Yards, single width.....	1,245,348	32.1
Value.....	\$705,815	32.5
Silk mixed—		
Yards, single width.....	197,571	14.8
Value.....	\$144,466	32.8
Other broad goods—		
Plushes—		
Yards, single width.....	432,260	100.0
Value.....	\$303,882	100.0
Tapestries—		
Yards, single width.....	659,806	100.0
Value.....	\$454,774	100.0
Upholstery—		
Yards, single width.....	350,000	100.0
Value.....	\$300,000	100.0
Ribbons.....	\$9,288,461	92.5
Laces, nets, veils, veiling, etc.....	\$262,031	63.2
Embroideries.....	\$6,112	100.0
Braids and bindings.....	\$254,456	62.9
All other products.....	\$767,942	87.0
Amount received for contract work.....	\$779,721	78.1
Dyeing, finishing, and printing in silk mills:		
Skein dyeing—		
Silk—		
Colors, pounds.....	433,645	76.1
Black, pounds.....	161,204	92.8
Spun—		
Colors, pounds.....	30,000	96.7
Cotton—		
Colors, pounds.....	439,009	98.4
Black, pounds.....	24,226	86.6
Piece dyeing—		
All-silk, yards, single width.....	9,691,708	85.7
Silk and cotton, yards, single width.....	5,643,775	100.0

TABLE 17.—*Passaic county, N. J.—silk and silk goods:*
1905—Continued.

	1905	Per cent of total for state of New Jersey.
Dyeing, finishing, and printing in silk mills—Cont'd.		
Finishing—		
All-silk, pieces (60 yards).....	3,790,767	75.5
Silk and cotton, pieces (60 yards).....	94,062	86.2
Printing—		
Printed in pieces—		
Silk and spun, yards, single width.....	293,480	100.0
Dyeing and printing in independent dyeing and finishing establishments:		
Skein dyeing—		
Silk, pounds.....	7,039,679	98.9
Spun silk, pounds.....	315,200	99.8
Piece dyeing—		
Silk piece goods, square yards.....	12,540,016	44.1
Printing—		
Silk piece goods, square yards.....	4,262,834	100.0

CAPITAL.

Table 18 is a comparative statement in detail of capital, by states, for 1890, 1900, and 1905.

The value of land and buildings owned, as shown in Table 18, is \$18,029,409, as compared with \$12,250,905 in 1900, and \$6,904,628 in 1890. The amounts reported for land and buildings do not include the value of rented property. The amount paid for hired property used by silk manufacturers at the last three census enumerations was: 1905, \$702,550; 1900, \$591,807; and 1890, \$734,268.

The localization of the industry is shown by the capital reported for New Jersey, Pennsylvania, Connecticut, and New York. These states returned an aggregate of \$97,384,284 in 1905, or 88.9 per cent of the total for the United States.

TABLE 18.—CAPITAL, BY STATES: 1890 TO 1905.

STATE.	Census.	Total.	Land.	Buildings.	Machinery, tools, and im- plements.	Cash and sun- dries.
United States.....	1905	\$109,556,621	\$3,336,596	\$14,692,813	\$29,347,016	\$62,180,196
	1900	81,082,201	2,045,093	10,205,812	20,750,449	48,080,847
	1890	51,007,537	1,691,660	5,212,968	14,181,680	29,921,229
California.....	1905	229,674	10,000	33,574	39,600	146,500
	1900	308,847	3,600	29,726	44,161	231,360
	1890	112,283			30,409	81,874
Connecticut.....	1905	16,675,954	288,300	2,466,450	2,816,172	11,105,032
	1900	12,166,775	282,294	1,597,352	2,061,799	8,225,330
	1890	9,037,042	162,589	1,143,200	1,617,538	6,123,715
Illinois.....	1905	390,672	20,000	30,000	120,000	220,672
	1900	259,540	15,000	25,000	95,959	123,581
	1890	422,096	33,000	60,000	106,200	222,896
Maryland ¹	1890	50,400	6,000	1,500	12,400	30,500
Massachusetts.....	1905	5,523,041	247,000	740,636	827,086	3,708,319
	1900	5,649,758	216,341	756,454	707,345	3,969,618
	1890	3,353,296	77,300	287,500	591,008	2,396,588
New Jersey.....	1905	33,644,698	844,078	3,294,250	8,821,593	20,684,777
	1900	29,285,792	733,367	2,966,084	7,297,856	18,288,485
	1890	16,809,927	590,919	1,579,160	5,039,564	9,600,284
New York.....	1905	15,751,246	529,744	1,131,097	5,150,205	8,940,200
	1900	9,800,207	202,138	586,224	3,061,252	5,950,593
	1890	11,165,918	544,002	832,240	3,612,758	6,176,918
North Carolina ²	1900	130,376	6,200	52,000	40,525	31,651
Ohio ³	1890	37,820	10,000	5,000	1,750	21,080
Pennsylvania.....	1905	31,312,386	1,100,553	5,849,615	10,083,814	14,278,404
	1900	20,894,023	491,598	3,688,545	6,696,158	10,017,722
	1890	9,362,063	236,850	1,225,652	2,941,679	4,957,882
Rhode Island.....	1905	2,651,653	135,200	372,799	510,539	1,633,115
	1900	680,252	24,955	96,224	165,032	394,041
	1890	122,256			70,364	51,892
Virginia ²	1900	594,359	12,600	174,440	210,200	197,119
All other states.....	⁴ 1905	3,377,297	161,721	774,392	978,007	1,463,177
	⁵ 1900	1,312,272	57,000	233,763	370,162	651,347
	⁶ 1890	534,426	41,000	78,716	157,110	257,609

¹ Included in "all other states" in 1905 and 1900.

² Included in "all other states" in 1905 and 1890.

³ Included in "all other states" in 1905. No establishments reported in 1900.

⁴ Includes states as follows: Delaware, Maine, Maryland, Michigan, New Hampshire, North Carolina, Ohio, and Virginia.

⁵ Includes states as follows: Delaware, Maine, Maryland, Michigan, New Hampshire, and Utah.

⁶ Includes states as follows: Maine, Michigan, Missouri, North Carolina, and Virginia.

WAGE-EARNERS AND OPERATIVES.

Table 19 presents the average number of wage-earners—men, women, and children—by states, from 1870 to 1905, inclusive, with the per cent that each class is of the total number.

TABLE 19.—WAGE-EARNERS, BY STATES: 1870 TO 1905.

STATE.	Cen-sus.	AVERAGE NUMBER.				PER CENT OF TOTAL.			STATE.	Cen-sus.	AVERAGE NUMBER.				PER CENT OF TOTAL.		
		Total.	Men 16 years and over.	Women 16 years and over.	Children under 16 years.	Men 16 years and over.	Women 16 years and over.	Children under 16 years.			Total.	Men 16 years and over.	Women 16 years and over.	Children under 16 years.	Men 16 years and over.	Women 16 years and over.	Children under 16 years.
United States.	1905	79,601	27,037	45,198	7,366	34.0	56.8	9.2	New Jersey	1890	17,445	7,773	8,773	899	44.6	50.3	5.1
	1900	65,416	24,206	34,797	6,413	37.0	53.2	9.8		1880	12,549	4,696	5,360	2,493	37.4	42.7	19.9
	1890	49,382	17,602	28,914	2,866	35.6	58.6	5.8		1870	2,790	733	1,162	895	26.3	41.6	32.1
	1880	31,337	9,375	16,396	5,566	29.9	52.3	17.8	New York	1905	11,283	3,664	7,211	408	32.5	63.9	3.6
	1870	6,649	1,734	3,529	1,386	26.1	53.1	20.8		1900	7,861	3,149	4,299	413	40.1	54.7	5.2
California ¹	1905	136	20	108	8	14.7	79.4	5.9		1890	12,719	4,456	7,983	280	35.0	62.8	2.2
	1900	117	24	91	2	20.5	77.8	1.7		1880	9,633	2,405	5,459	1,769	25.0	56.7	18.3
	1890	203	49	152	2	24.1	74.9	1.0		1870	739	154	413	172	20.8	55.9	23.3
	1880	151	20	106	25	13.2	70.2	16.6	North Carolina ² ...	1900	209	35	119	55	16.8	56.9	26.3
Connecticut	1905	7,792	3,306	4,187	299	42.4	53.7	3.9									
	1900	6,514	2,763	3,585	166	42.4	55.0	2.6	Ohio ⁴	1890	36	8	28	.....	22.2	77.8	.....
	1890	4,964	1,540	3,301	123	31.0	66.5	2.5		1880	135	21	73	41	15.5	54.1	30.4
	1880	3,428	785	1,990	653	22.9	58.0	19.1	Pennsylvania	1905	26,915	6,318	15,863	4,734	23.5	53.9	17.6
	1870	1,703	466	1,003	234	27.4	58.9	13.7		1900	21,028	5,214	11,565	4,249	24.8	55.0	20.2
Illinois ¹	1905	524	50	436	38	9.5	83.2	7.3		1890	9,330	2,420	5,617	1,293	25.9	60.2	13.9
	1900	412	81	310	21	19.7	75.2	5.1		1880	3,189	1,000	1,870	319	31.4	58.6	10.0
	1890	756	157	589	10	20.8	77.9	1.3		1870	936	266	655	15	28.4	70.0	1.6
	1880	259	67	135	57	25.9	52.1	22.0	Rhode Island ⁵	1905	1,291	436	699	156	33.8	54.1	12.1
Maryland ²	1890	72	28	44	.....	38.9	61.1	.....		1900	455	124	326	5	27.3	71.6	1.1
	1880	82	12	56	14	14.6	68.3	17.1		1890	186	49	107	30	26.4	57.5	16.1
Massachusetts....	1905	3,261	1,042	2,012	207	32.0	61.7	6.3	Virginia ³	1900	473	144	228	101	30.4	48.2	21.4
	1900	3,110	1,102	1,837	171	35.4	59.1	5.5									
	1890	2,993	977	1,928	88	32.6	64.4	3.0	All other states ⁶ ...	1905	2,918	840	1,735	343	28.8	59.5	11.7
	1880	1,826	353	1,285	188	19.3	70.4	10.3		1900	1,080	291	758	31	26.9	70.2	2.9
	1870	453	97	286	70	21.4	63.1	15.5		1890	678	145	392	141	21.4	57.8	20.8
New Jersey	1905	25,481	11,361	12,947	1,173	44.6	50.8	4.6		1880	85	16	62	7	18.8	73.0	8.2
	1900	24,157	11,279	11,679	1,199	46.7	48.3	5.0		1870	28	18	10	.....	64.3	35.7	.....

¹ No establishments reported in 1870.

² Included in "all other states" in 1905 and 1900. No establishments reported in 1870.

³ Included in "all other states" in 1905 and 1890. No establishments reported in 1880 and 1870.

⁴ Included in "all other states" in 1905. No establishments reported in 1900 and 1870.

⁵ Included in "all other states" in 1880. No establishments reported in 1870.

⁶ Includes states as follows: Delaware, Maine, Maryland, Michigan, New Hampshire, North Carolina, Ohio, and Virginia.

⁷ Includes states as follows: Delaware, Maine, Maryland, Michigan, New Hampshire, and Utah.

⁸ Includes states as follows: Maine, Michigan, Missouri, North Carolina, and Virginia.

⁹ Includes states as follows: Kansas, Maine, Missouri, New Hampshire, Rhode Island, and Vermont.

¹⁰ Includes states as follows: New Hampshire and Vermont.

Table 19 shows that between the censuses of 1900 and 1905 the average number of wage-earners employed in the silk mills increased 21.7 per cent. During the five-year period the proportion of men employed decreased 3 per cent, and the proportion of children employed six-tenths of 1 per cent; on the other hand, there was an increase of 3.6 per cent in the proportion of women employed. It will be noted that the decreases in the per cent of children employed were in Pennsylvania, New Jersey, and New York, these states having considerably increased their weaving plants and loom equipments since the census of 1900.

Twenty per cent of the increase in the number of wage-earners in the silk mills since 1900 were men, 73.3 per cent were women, and 6.7 per cent were children under 16 years of age.

Table 25 indicates that the greatest number of wage-earners employed at any one time during the year was 90,717 and the least number was 68,369, the average number being 79,601. In confirmation of what has been said in this report concerning unfavorable general conditions in the silk industry in the calendar year 1904, analysis of wage-earners employed by months indicates the following increases in the average number employed in the closing three months of the year over the average number employed in January, February, and March: Men, 1,376; women, 2,023; and children, 538—a total increase of 3,937 wage-earners, or 5 per cent.

Table 20 presents the number of operatives—weavers, and spinners, winders, warpers, etc., including unskilled employees, by states, for 1905.

TABLE 20.—WAGE-EARNERS, CLASSIFIED BY OCCUPATION, BY STATES: 1905.

STATE.	AGGREGATE (AVERAGE NUMBER).			WEAVERS (AVERAGE NUMBER).															SPINNERS, WINDERS, WARPERS, ETC. (AVERAGE NUMBER).		
	Men.	Women.	Children.	Total.			Broad silks.			Ribbons.			Velvets and plushes.			All other.			Men.	Women.	Children.
				Men.	Women.	Children.	Men.	Women.	Children.	Men.	Women.	Children.	Men.	Women.	Children.	Men.	Women.	Children.			
United States...	27,037	45,198	7,366	15,942	16,555	402	9,619	13,264	393	4,398	1,828	47	554	183	1	1,371	1,280	51	11,095	28,643	6,874
California.....	20	108	8		2														20	106	8
Connecticut.....	3,306	4,187	299	1,061	886	1	438	537	1	100	210		468	134				2	2,245	3,301	298
Illinois.....	60	436	38		4	6										5	5		46	430	38
Massachusetts.....	1,042	2,012	207	440	321		437	296			20					3	3		602	1,691	207
New Jersey.....	11,361	12,947	1,173	7,743	4,978	15	5,470	4,083	14	1,780	744		68			425	151	1	3,618	7,969	1,158
New York.....	3,664	7,211	408	2,641	2,407	59	791	1,588	52	1,283	206	2	6	45	1	561	568	4	1,023	4,804	349
Pennsylvania.....	6,318	15,863	4,734	3,634	7,189	409	2,032	6,054	318	1,218	607	45	12	4		372	524	46	2,684	8,674	4,325
Rhode Island.....	436	699	156	124	151		120	103		3	29					1	19		312	548	156
All other states ¹	840	1,735	343	295	615	8	281	603	8	14	12								545	1,120	335

¹ Includes states as follows: Delaware, Maine, Maryland, Michigan, New Hampshire, North Carolina, Ohio, and Virginia.

SKEIN DYEING, PIECE DYEING, AND PRINTING.

The figures for dyeing, finishing, and printing, given in Table 25, represent silk mills only. The statistics of independent dyeing and finishing plants are presented in a separate report entitled "Dyeing and finishing textiles." The three following tables compare the statistics of dyeing and printing in silk mills and independent plants.

Table 21 presents, by states, the statistics of skein dyeing of both reeled and spun silk, and of cotton and woolen yarns in silk mills and in independent dyeing plants, for 1905.

Table 22 presents, by states, the statistics of piece

dyeing of reeled and spun silk, silk and cotton, and silk and woolen goods in silk mills and in independent dyeing plants, for 1905.

Table 23 presents, by states, the statistics of silk printing in silk mills and in independent printing plants for 1905.

The growth and importance of these branches of the silk industry are best illustrated by the fact that the capacity of one skein dyeing plant is now sufficient to turn out 12,000 pounds daily; one piece-dyeing plant has a capacity of 200,000 yards daily; and one finishing plant, a capacity of 160,000 yards daily.

TABLE 21.—SKEIN DYEING IN SILK MILLS AND INDEPENDENT PLANTS, BY STATES: 1905.

STATE.	Amount charged for work done in independent plants.	Aggregate (pounds).	SILK (POUNDS).			OTHER YARNS (POUNDS).		
			Total.	Reeled.	Spun.	Total.	Cotton.	Woolen.
United States.....	\$6,518,191	15,990,353	13,374,040	11,996,819	1,377,221	2,616,313	2,230,840	385,473
Silk mills.....		4,874,410	3,237,897	2,616,461	621,436	1,636,513	1,552,840	83,673
Independent plants.....	6,518,191	11,115,943	10,136,143	9,380,358	755,785	1,979,800	1,678,000	1,301,800
Connecticut:								
Silk mills.....		1,908,189	1,357,580	911,422	446,158	550,609	550,609	
Independent plants.....	1,500	6,000	6,000	6,000				
Massachusetts:								
Silk mills.....		1,152,696	636,645	584,536	52,109	516,051	432,378	83,673
Independent plants.....	2,500	6,500	4,000		4,000	2,500		2,500
New Jersey:								
Silk mills.....		1,248,662	774,622	743,491	31,131	474,040	474,040	
Independent plants.....	5,091,169	7,435,179	7,434,679	7,118,879	315,800	1,500	1,500	
New York:								
Silk mills.....		155,004	130,844	53,850	76,994	24,160	24,160	
Independent plants.....	281,998	1,022,455	916,455	690,700	225,755	1,106,000	1,170,000	136,000
Pennsylvania:								
Silk mills.....		147,368	77,740	69,502	8,238	69,628	69,628	
Independent plants.....	1,072,199	2,569,725	1,698,925	1,488,695	210,230	1,870,800	1,607,500	1,263,300
All other states: ²								
Silk mills.....		262,491	260,466	253,660	6,806	2,025	2,025	
Independent plants.....	68,825	76,084	76,084	76,084				

¹ The quantities of cotton and woolen yarns shown for independent plants represent only the amount of such yarns dyed in plants which did silk dyeing.² Includes states as follows: Silk mills—California, Maine, Michigan, and Rhode Island. Independent plants—Illinois and Virginia.

TABLE 22.—Silk piece dyeing in silk mills and independent plants, by states: 1905.

STATE.	Amount charged for work done in independent plants.	Total (yards). ¹	Reeled and spun silk (yards). ¹	Silk and cotton (yards). ¹	Silk and wool (yards). ¹
United States	\$990,991	53,463,596	(²)	(²)	(²)
Silk mills		20,602,266	13,402,164	7,158,037	42,065
Independent plants..	990,991	32,861,330	(²)	(²)	(²)
New Jersey:					
Silk mills		16,956,739	11,312,964	5,643,775	(²)
Independent plants ..	903,504	28,429,136	(²)	(²)	(²)
New York:					
Silk mills		1,078,740	809,940	268,800	(²)
Independent plants ..	48,900	993,000	(²)	(²)	(²)
All other states: ³					
Silk mills		2,566,787	1,279,260	1,245,462	42,065
Independent plants ..	38,587	3,439,194	(²)	(²)	(²)

¹ The number of yards treated is reported by silk mills in single width yards and by independent plants in square yards.

² Not reported separately by independent plants.

³ Includes states as follows: Silk mills—Connecticut. Independent plants—California, Pennsylvania, and Rhode Island.

TABLE 23.—Silk printing in silk mills and independent plants, by states: 1905.

STATE.	Amount charged for work done in independent plants.	Total (yards). ¹	Printed in warp (yards). ¹	PRINTED IN PIECE (YARDS). ¹		
				Silk.	Silk and spun.	Silk and cotton.
United States ..	\$360,333	8,130,103	(²)	(²)	(²)	(²)
Silk mills		3,406,585	118,640	2,955,568	293,480	38,897
Independent plants ..	360,333	4,723,518	(²)	(²)	(²)	(²)
New Jersey:						
Silk mills		724,343	101,764	329,099	293,480	(²)
Independent plants ..	335,699	4,262,834	(²)	(²)	(²)	(²)
All other states: ³						
Silk mills		2,682,242	16,876	2,626,469	(²)	38,897
Independent plants ..	24,634	460,684	(²)	(²)	(²)	(²)

¹ The number of yards treated is reported by silk mills in single width yards and by independent plants in square yards.

² Not reported separately by independent plants.

³ Includes states as follows: Silk mills—Connecticut. Independent plants—New York.

At the census of 1900 similar tables for piece dyeing and printing included only plain and fancy broad silks, piece-dyed weaves, velvets, plushes, tapestries, and upholstery silks. At the present census these tables embrace all the products of the industry, including ribbons, veiling, sewings, twists, etc.

RAW SILK SUPPLY OF THE WORLD.

Table 24 presents the total raw silk production of the world, showing in detail the production of the several sources of supply, for five-year periods, from 1870 to 1905, inclusive, the weight for each country being given in kilograms, which in the aggregate are reduced to pounds.

In April, 1903, the Commission of Statistics of the Association of Industry and Commerce of Silk in Italy made it known officially that estimates of the Italian crops of raw silk between the seasons 1889–90 to 1902–3 were found to have been erroneous and that the production, based on the national production of cocoons from 1889 to 1902, had really been larger than reported. A corrected tabulation was published in the Bolletino di Sericoltura, of Milan (April, 1903), contrasting the former official figures with the corrected official figures, which adds the following amounts to the previous generally accepted figures:

	Kilograms.	Pounds.
1900	1,165,500	2,569,461
1895	1,152,900	2,541,683
1890	153,000	337,304

These corrections are embodied in Table 24.

TABLE 24.—PRODUCTION OF RAW SILK, BY COUNTRIES, AT INTERVALS OF FIVE YEARS: 1870 TO 1905.

COUNTRY.	Unit of measure.	YEAR.							
		1905	1900	1895	1890	1885	1880 ¹	1875 ¹	1870 ²
Aggregate	Kilograms....	19,050,350	17,932,500	15,184,900	11,473,000	9,926,000	10,577,000	9,616,900	7,406,400
	Pounds.....	41,998,402	39,533,990	33,476,631	25,293,376	21,882,860	23,318,054	21,201,418	16,328,149
Europe, total	Kilograms....	5,917,000	5,442,500	5,913,900	3,983,000	3,520,000	3,608,000	3,456,800	3,817,000
Italy	Kilograms....	4,900,000	4,528,500	4,061,900	3,033,000	2,810,000			3,180,000
France	Kilograms....	625,000	540,000	896,000	618,000	483,000			637,000
Austria	Kilograms....	315,000	276,000	266,000	267,000	142,000			
Spain	Kilograms....	77,000	78,000	90,000	65,000	85,000			
The Levant, total	Kilograms....	2,186,000	1,760,000	1,244,000	707,000	730,000	727,000	760,400	
Asia, total exported	Kilograms....	10,947,350	10,730,000	8,027,000	6,783,000	5,676,000	6,242,000	5,399,700	3,589,400
Japan, Yokohama	Kilograms....	5,679,518	3,371,000	3,076,000	2,130,000	1,346,000			423,000
China, Shanghai ³	Kilograms....	2,950,047	4,756,000	3,358,000	2,914,000	2,195,000			1,680,400
China, Canton	Kilograms....	2,137,785	2,253,000	1,394,000	1,599,000	774,000			1,018,000
India, Calcutta	Kilograms....	180,000	350,000	199,000	210,000	861,000			468,000

¹ Estimated from best information obtainable.

² Trustworthy figures for production prior to 1870 are not available.

³ Exclusive of tussah silk.

In the past thirty years the raw silk supply of the world almost doubled. In the twenty years, 1885 to 1905, it increased 91.9 per cent. In the last-named period Italy increased her output of raw silk from

6,194,926 to 10,802,540 pounds, or 74.4 per cent; France increased her supply from 1,064,822 to 1,377,875 pounds, or 29.4 per cent; the exports from Canton and Shanghai, not including tussah silks, rose

from 7,647,757 to 11,216,634 pounds, or 46.7 per cent; while the most notable increases were from Japan, 2,967,392 to 12,521,065 pounds, or 322 per cent more in 1905 than in 1885, and from the Levant, 1,609,358 in 1885 to 4,819,256 pounds in 1905, or 199.5 per cent. China is the largest raw silk producing country in the world, but the above figures show the continued commercial indifference of her silk guild to the trade wants of her customers in raw silk outside of her own borders.

Standardization of the skein.—In the year 1902 the American silk trade united in favoring a standard American skein of reeled raw silk, which they urged upon the silk reelers of China, Japan, and Italy as best suited to the requirements of American silk mills. Previously great lack of uniformity existed in the size, weight, and length of skeins of silk exported to the United States from these countries, as also from many silk reeling establishments or filatures in the same country. Practically no two skeins of raw silk that were sent to the American market from different countries were alike in character, in length, or in traverse, and when worked in the mills it was found that the cost of some was more than double that of others.

The memorial of the American manufacturers was printed in French, Italian, Japanese, and Chinese, and was generally distributed to the silk reelers in those countries. It strongly urged uniformity in four particular features of the silk skein of commerce, as follows:

1. The size of the skein should be from 56 to 58 inches in circumference.
2. The weight of skein should be from 2½ to 3 ounces, the lighter skeins for fine sizes, the heavier for coarse sizes, but in no case to exceed 3 ounces.
3. There should be two cross lacings in each skein, which should not be twisted too hard.
4. The traverse should be uniform; threads should make 33 complete crossings across the skein and back in 50 revolutions of the skein. This feature was shown in an illustration that accompanied the memorial.

At the International Exposition at St. Louis, Mo., in 1904, the American members of the Jury of Award noted with great satisfaction that the recommendations of their memorial in 1902 had been generally followed by the exhibitors of raw silk from Japan and Italy, but no sign was apparent in the few exhibits from China that the Chinese were aware of the existence of a request that had been generally distributed among their silk reelers and dealers. The diminishing exports of Chinese silk are illustrated by the figures in Table 24, in contrast with the marked increases in raw silk supplies from other countries.

Imports of raw silk.—The following tabular statement shows the quantity, invoice value, and average value per pound of raw silk imported into the United States in each census year from 1860 to 1905. The average cost per pound indicated represents the re-

ported foreign invoice value of every description of silk raw materials imported, including the cheapest grades, such as tussah and Doppioni silk, as well as reeled silk of the highest classification and cost:

Raw silk imports: 1860 to 1905.¹

YEAR.	Pounds.	Value.	Average value per pound.
1905.....	17,812,133	\$59,542,892	\$3.34
1900.....	11,259,310	44,549,672	3.96
1890.....	5,943,160	23,285,099	3.92
1880.....	2,562,236	12,024,699	4.69
1870.....	583,589	3,017,958	5.17
1860.....	297,877	1,340,676	4.50

¹ Bureau of Statistics, Department of Commerce and Labor, "Commerce and Navigation of the United States."

Since the census of 1900 there has been an important increase in the consumption of Italian raw silk in the American market, the percentage of increased receipts being greater than from any other country. Under ordinary crop conditions, Italy now supplies 25.7 per cent of the American consumption, as against 19.7 per cent in 1900. The United States alone took 42.3 per cent of Italy's raw silk product in 1905.

The per cent of each country's contribution to the world's supply in the silk seasons 1904-5 and 1899-1900, and the relative percentage that each country contributes to the consumption of raw silk in the United States, are indicated in the following tabular statement:

COUNTRY.	1905		1900	
	Per cent of contribution to world's supply.	Per cent of American consumption.	Per cent of contribution to world's supply.	Per cent of American consumption.
Total.....	100.0	100.0	100.0	100.0
China.....	26.7	17.6	39.1	34.3
Japan.....	29.8	46.6	18.8	42.3
Italy.....	25.7	25.7	25.3	19.7
France.....	3.3	4.5	3.1	3.2
Levant.....	11.5		9.8	
All other countries.....	3.0	5.6	3.9	0.5

THE SILK EXHIBIT AT THE ST. LOUIS EXPOSITION IN 1904.

At the International Exposition of art, industry, and science, held at St. Louis, Mo., during the year 1904, the silk industry of the United States was represented by 22 exhibits, showing excellent assortments in designs, coloring, and construction of woven silk fabrics, ribbons, brocades, neckwear, silks, and scarfs. Yarn-dyed black dress silks and satins of superior excellence were shown; also piece-dyed goods, lining silks, and cotton backs, velvets indicating great progress in the manufacture in the United States; warp-print tissues; peau de crepe in varied range of colorings; souvenir and art pictures woven on power looms; and silk labels, etc. Considering the limited number of exhibitors from the American silk mills and

the moderate selling price of the merchandise shown, the United States exhibit of silk fabrics was adjudged to be highly creditable and fairly representative. In all there were 467 silk exhibits from all parts of the world, which included every description of raw materials and silk tissues from the silk cocoons of Italy, Japan, and China to the remarkable silk damask wall decorations of Germany (representing the Charlottenburg Castle, near Berlin), the rich and handsome high class silk novelties of every description from Lyon, the velvet and silk ribbons of great beauty and excellent design from Saint Etienne, the soft-finished lustrous satins and decorative silk brocades from Macclesfield, England, and the world famous crepes from London.

There were exhibits from thirteen foreign countries in all, and seven countries besides our own were represented on the International Jury, which determined the silk awards, namely, France (4 jurors), Italy (1), Germany (1), Great Britain (1), Japan (2), China (1), and Siam (1). In addition to awards of merit conferred on exhibiting firms, awards were conferred on collaborators or employees of these firms, according to the merit of each employee, based on skill, ability, magnitude and value of work, and length of service.

GROWTH OF THE SILK INDUSTRY.

Illustrative of the growth of the silk industry since the census of 1900 by its establishment in new places where favorable conditions exist for its development, a list of such places, numbering 116 in all, and a general description of the articles made, is appended:

YEAR ESTABLISHED.	Place.	Class of goods.
NEW ENGLAND STATES.		
1904	Maine:	
	South Penobscot.....	Knit goods.
1904	Vermont:	
	Bennington.....	Knit goods.
1900 1900 1901 1902 1902 1903 1903 1904 1904 1905 1905 1905 1905	Massachusetts:	
	Littleton.....	Elastic webs.
	Milford.....	Elastic fabrics.
	Plymouth.....	Tram and floss.
	Fitchburg.....	Broad and dress silks.
	Rockland.....	Silk webs.
	Fall River.....	Dress and lining silks.
	Haverhill.....	Embroidery and silk chenille.
	Highlandville.....	Mitts, gloves, elastic hosiery, underwear.
	Malden.....	Knit goods, underwear.
	New Bedford.....	Broad silks.
	Becket.....	Sewing silk.
	Hopkinton.....	Broad silks.
	Lowell.....	Ribbons.
	Medfield.....	Silk-covered bonnet wire.
1905	Cambridgeport.....	Tram, floss, and fringes.
	Rhode Island:	
1900 1901 1901 1903	Woonsocket.....	Lining silks.
	Valley Falls.....	Broad silks.
	Shannock.....	Silk elastic goods.
	Centerdale.....	Tram and organzine.
1905	Central Falls.....	Lining silks.
1901 1901 1902 1902 1903 1904 1904 1905	Connecticut:	
	Bethel.....	Broad, tie, and dress silks.
	Stamford.....	Crochet and spool silk.
	Norwalk.....	Ribbons.
	New Haven.....	Braids, spun silk, etc.
	Marlboro Mills.....	Lining silks.
	New Britain.....	Hosiery.
	South Norwalk.....	Laces and embroideries.
	Meriden.....	Braids.
	MIDDLE STATES.	
1900 1900 1901	New York:	
	Phoenix.....	Tram and organzine.
	Sidney.....	Gloves.
	Richmond.....	Ribbons.

YEAR ESTABLISHED.	Place.	Class of goods.
MIDDLE STATES—continued.		
New York—Continued.		
1901	Schenectady.....	Silk-covered wire.
1902	Geneva.....	Woven labels.
1902	Hornellsville.....	Dress silks.
1902	Ogdensburg.....	Dress silks.
1902	Owego.....	Gloves and mitts.
1902	Philmont.....	Underwear.
1902	Valatie.....	Furniture gimps.
1903	Amsterdam.....	Gloves and mitts.
1903	Andover.....	Broad and lining silks.
1903	Binghamton.....	Dress and lining silks.
1903	Buffalo.....	Tram and organzine.
1903	Lyons.....	Gloves and mitts.
1904	Chadwicks.....	Broad goods.
1904	Cortland.....	Dress silks.
1904	Manlius.....	Gloves and mitts.
1904	North Tonawanda.....	Gloves and mitts.
1904	Saugerties.....	Embroideries and trimmings.
1904	Tottenville.....	Trimmings.
1905	Canistota.....	Tram and organzine.
1905	Saratoga Springs.....	Gloves.
1905	Rome.....	Silk-covered wire.
New Jersey:		
1900	Nutley.....	Trimmings.
1901	Hawthorne.....	Broad silks.
1902	Bayonne.....	Broad and thrown silks.
1902	Burlington.....	Broad, tie, and lining silks.
1902	Camden.....	Curtains, embroideries, etc.
1902	Jamesburg.....	Dress silks.
1902	New Brunswick.....	Underwear.
1903	Cedar Brook.....	Draperies.
1903	Little Falls.....	Dress silks.
1905	Oxford.....	Tram and organzine.
1905	Rockaway.....	Tram.
Delaware:		
1905	Marshallton.....	Taffetas and veilings.
Pennsylvania:		
1901	Berwick.....	Tram and organzine.
1901	Holidaysburg.....	Tram and organzine.
1901	Slatington.....	Broad silks.
1901	Trevorton.....	Dress silks.
1902	Denver.....	Dress silks.
1902	Hamburg.....	Broad silks.
1902	Lansdowne.....	Artificial silk.
1902	Mauch Chunk.....	Tram and organzine.
1902	North Wales.....	Spun silk, sewing silk, etc.
1902	Olyphant.....	Tram and organzine.
1902	Palmerton.....	Tram and organzine.
1902	Tohyhanna.....	Tram and organzine.
1903	Dushore.....	Broad silks.
1903	Duryea.....	Tram and organzine.
1903	Erie.....	Dress silks.
1903	Jersey Shore.....	Dress silks.
1903	Littlestown.....	Tram and organzine.
1903	Mayfield.....	Tram and organzine.
1903	Mercer.....	Broad and dress silks.
1903	Shickshinny.....	Tram and organzine.
1904	Archbald.....	Broad silks.
1904	Burmont.....	Upholstery fabrics.
1904	Chambersburg.....	Broad silks.
1904	Lansford.....	Tram and organzine.
1904	Lebanon.....	Broad silks.
1904	Lewistown.....	Hosiery.
1904	Nanticoke.....	Tram and organzine.
1904	Wind Gap.....	Ribbons.
1905	Bally.....	Ribbons.
1905	Bangor.....	Broad silks.
1905	Jessup.....	Tram and organzine.
1905	Kingston.....	Broad silks.
1905	Lenni.....	Pushes and velvets.
1905	Norristown.....	Artificial silk.
1905	Towanda.....	Tram and organzine.
Maryland:		
1901	Cumberland.....	Organzine.
Ohio:		
1901	Cleveland.....	Artificial silk.
1902	Marion.....	Broad, tie, and lining silks.
1902	Portsmouth.....	Silk braids.
Indiana:		
1903	South Bend.....	Silk bullet-proof cloth.
Michigan:		
1901	Middleville.....	Silk tapes and ribbons.
Wisconsin:		
1904	Stevens Point.....	Silk underwear.
SOUTHERN STATES.		
West Virginia:		
1905	Martinsburg.....	Knit goods.
North Carolina:		
1903	High Point.....	Thrown silk.
Georgia:		
1905	Augusta.....	Tram and organzine.
WESTERN STATES.		
Missouri:		
1905	Kansas City.....	Elastic hosiery.
Montana:		
1905	Helena.....	Knit goods.
Utah:		
1903	Logan.....	Knit goods.
1903	Ogden.....	Knit goods.
Washington:		
1904	Bellingham.....	Silk goods and handkerchiefs.

The greatest additions to the industry since the census of 1900 have been in Pennsylvania, where silk mills have been established in 35 new places or towns; in New York, where weaving mills for broad silks were established in Hornellsville, Binghamton, Ogdensburg, Andover, Chadwicks, Cortland, and at 18 other places for the extension of silk manufacturing in one form or another; in New Jersey, 11 new places; in Connecticut, 8; and in Rhode Island, 5.

One of the best tests of the satisfactory growth of an

industry is the increase in its machinery equipment. Its permanence is helped likewise by the seeking out of new places where favorable conditions exist for its establishment and development.

DETAILED STATISTICS OF SILK MANUFACTURES.

The detailed statistics for the industry as reported in answer to every inquiry of the silk schedule at the census of 1905 are shown in Table 25.

TABLE 25.—SILK AND SILK GOODS—DETAILED SUMMARY, BY STATES: 1905.

	United States.	California.	Connecticut.	Illinois.	Massachusetts.	New Jersey.	New York.	Pennsylvania.	Rhode Island.	All other states. ¹
Number of establishments.....	624	4	43	5	18	239	123	168	8	18
Capital, total.....	\$109,556,621	\$229,674	\$16,675,954	\$390,672	\$5,523,041	\$33,644,698	\$15,751,246	\$31,312,386	\$2,651,653	\$3,377,297
Land.....	\$3,336,596	\$10,000	\$288,300	\$20,000	\$247,000	\$844,078	\$529,744	\$1,100,553	\$135,200	\$161,721
Buildings.....	\$14,692,813	\$33,574	\$2,466,450	\$30,000	\$740,636	\$3,294,250	\$1,131,097	\$5,849,615	\$372,799	\$774,392
Machinery, tools, and implements.....	\$29,347,016	\$39,600	\$2,816,172	\$120,000	\$827,036	\$8,821,593	\$5,150,205	\$10,083,814	\$510,539	\$978,007
Cash and sundries.....	\$62,180,196	\$146,500	\$11,105,032	\$220,672	\$3,708,319	\$20,684,777	\$8,940,200	\$14,278,404	\$1,633,115	\$1,463,177
Proprietors and firm members.....	525	2	38	1	10	227	105	133	4	5
Salaries.....	4,027	10	327	25	126	1,278	960	1,192	31	78
Salaries.....	\$4,742,270	\$11,924	\$479,213	\$31,342	\$142,176	\$1,555,662	\$1,103,792	\$1,300,068	\$41,254	\$76,839
Officers of corporations—										
Number.....	360	2	26	2	16	101	81	116	4	12
Salaries.....	\$1,109,957	\$2,600	\$97,860	\$3,000	\$38,560	\$367,550	\$301,432	\$265,215	\$17,060	\$16,680
General superintendents, managers, clerks, etc.—										
Number.....	3,667	8	301	23	110	1,177	879	1,076	27	66
Salaries.....	\$3,032,313	\$9,324	\$381,353	\$28,342	\$103,616	\$1,188,112	\$802,360	\$1,034,853	\$24,194	\$60,159
Men—										
Number.....	3,129	7	264	19	85	1,061	714	900	19	60
Salaries.....	\$3,358,668	\$8,674	\$361,561	\$25,862	\$91,332	\$1,123,962	\$714,997	\$953,488	\$21,080	\$57,712
Women—										
Number.....	538	1	37	4	25	116	165	176	8	5
Salaries.....	\$273,645	\$650	\$19,792	\$2,480	\$12,284	\$64,150	\$87,363	\$81,365	\$3,114	\$2,447
Wage-earners, including pieceworkers, and total wages:										
Greatest number employed at any one time during the year.....	90,717	161	8,771	612	3,515	29,284	13,081	30,551	1,399	3,343
Least number employed at any one time during the year.....	68,369	120	6,959	374	2,622	21,955	9,528	22,996	1,179	2,636
Average number.....	79,041	136	7,792	524	3,261	25,481	11,283	26,915	1,291	2,918
Total wages.....	\$26,767,943	\$44,050	\$3,124,394	\$135,579	\$1,162,118	\$9,892,804	\$4,267,867	\$6,972,852	\$479,991	\$638,288
Men 16 years and over—										
Average number.....	27,037	20	3,306	50	1,042	11,361	3,664	6,318	436	840
Wages.....	\$12,787,322	\$11,661	\$1,681,933	\$29,268	\$491,173	\$5,466,163	\$1,991,512	\$2,588,931	\$225,080	\$301,601
Women 16 years and over—										
Average number.....	45,198	103	4,187	436	2,012	12,947	7,211	15,863	699	1,735
Wages.....	\$12,859,156	\$31,029	\$1,379,011	\$98,254	\$623,401	\$4,228,507	\$2,205,611	\$3,738,298	\$216,298	\$338,947
Children under 16 years—										
Average number.....	7,366	8	299	38	207	1,173	408	4,734	156	343
Wages.....	\$1,121,465	\$1,360	\$63,450	\$8,057	\$47,544	\$198,334	\$70,744	\$645,623	\$38,613	\$47,740
Average number of wage-earners, including pieceworkers, employed during each month:										
Men 16 years and over—										
January.....	25,974	17	3,119	53	1,046	10,945	3,604	6,040	374	776
February.....	26,596	18	3,138	53	1,064	11,047	3,714	6,357	400	805
March.....	27,205	20	3,137	53	1,064	11,539	3,734	6,304	394	800
April.....	27,285	20	3,154	53	1,062	11,598	3,754	6,374	420	850
May.....	27,165	24	3,237	48	1,039	11,504	3,639	6,257	470	847
June.....	26,381	21	3,284	43	999	11,078	3,368	6,363	480	845
July.....	26,200	18	3,314	48	1,025	10,982	3,389	6,107	449	868
August.....	26,723	22	3,356	50	1,027	11,133	3,625	6,186	451	873
September.....	27,012	22	3,406	52	1,035	11,235	3,698	6,289	459	816
October.....	27,800	22	3,543	51	1,045	11,592	3,782	6,429	463	873
November.....	27,923	18	3,587	51	1,050	11,729	3,796	6,433	437	822
December.....	28,180	18	3,397	45	1,048	11,950	3,865	6,577	435	845
Women 16 years and over—										
January.....	43,648	107	4,167	495	2,036	12,358	7,101	15,073	668	1,643
February.....	44,650	110	4,232	500	2,090	12,555	7,345	15,423	705	1,690
March.....	45,560	112	4,270	493	2,087	12,927	7,474	15,765	712	1,720
April.....	45,812	122	4,257	498	2,077	13,165	7,426	15,843	721	1,703
May.....	45,364	122	4,212	387	2,014	13,157	7,108	15,921	700	1,743
June.....	44,316	113	4,130	387	1,901	12,704	6,914	15,769	689	1,709
July.....	43,820	100	3,997	383	1,932	12,552	6,833	15,694	683	1,686
August.....	43,959	102	4,032	428	1,978	12,764	6,638	15,532	690	1,795
September.....	45,320	100	4,095	440	1,993	12,952	7,269	15,948	701	1,822
October.....	46,432	103	4,237	440	2,028	13,332	7,500	16,244	700	1,848
November.....	46,569	103	4,281	434	2,005	13,324	7,420	16,583	705	1,714
December.....	46,926	102	4,334	347	2,003	13,574	7,504	16,601	714	1,747
Children under 16 years—										
January.....	6,965	10	271	44	208	1,127	398	4,467	146	294
February.....	6,971	9	277	40	208	1,118	399	4,471	151	298
March.....	7,247	7	296	43	207	1,154	418	4,647	159	316
April.....	7,329	8	302	41	208	1,178	409	4,710	156	317
May.....	7,382	8	308	37	197	1,157	407	4,753	159	356
June.....	7,401	7	320	35	186	1,165	405	4,751	158	374
July.....	7,378	7	318	27	208	1,157	420	4,688	156	397
August.....	7,423	11	308	29	213	1,183	406	4,713	158	402
September.....	7,499	7	322	44	220	1,180	405	4,801	161	359
October.....	7,686	8	304	49	215	1,181	407	4,976	157	389
November.....	7,493	8	282	43	210	1,231	414	4,854	154	297
December.....	7,618	6	280	24	204	1,245	408	4,977	157	317

¹ Includes establishments distributed as follows: Delaware, 2; Maine, 1; Maryland, 3; Michigan, 2; New Hampshire, 2; North Carolina, 3; Ohio, 2; Virginia, 2.

TABLE 25.—SILK AND SILK GOODS—DETAILED SUMMARY, BY STATES: 1905—Continued.

	United States.	California.	Connecticut.	Illinois.	Massachusetts.	New Jersey.	New York.	Pennsylvania.	Rhode Island.	All other states.
Skilled operatives, average number:										
Weavers—										
Broad silk—										
Men.....	9,619		488		437	5,470	791	2,032	120	281
Women.....	13,264		537		296	4,083	1,588	6,054	103	603
Children.....	393		1			14	52	318		8
Ribbons—										
Men.....	4,398		100			1,780	1,283	1,218	3	14
Women.....	1,828		210		20	744	206	607	29	12
Children.....	47						2	45		
Velvets and plushes—										
Men.....	554		468			68	11	12		
Women.....	183		134				45	4		
Children.....	1						1			
All other—										
Men.....	1,371		5	4	3	425	561	372	1	
Women.....	1,280	2	5	6	5	151	568	524	19	
Children.....	51					1	4	46		
Spinners, winders, warpers, etc.—										
Men.....	7,067	11	1,426	11	310	2,652	569	1,555	50	483
Women.....	21,245	102	1,899	79	1,133	6,668	2,439	7,513	292	1,120
Children.....	5,202	8	176	12	137	792	191	3,548	68	270
Miscellaneous expenses, total.....	\$14,052,777	\$7,093	\$969,653	\$35,444	\$513,096	\$6,045,201	\$2,614,112	\$3,472,624	\$116,294	\$279,255
Rent of works.....	\$702,550	\$1,470	\$29,597	\$5,900	\$14,993	\$285,427	\$245,977	\$108,926	\$8,620	\$1,640
Taxes.....	\$337,784	\$363	\$58,635	\$1,544	\$36,258	\$112,423	\$27,711	\$70,365	\$10,392	\$20,093
Rent of offices, interest, insurance, and all other sundry expenses not hitherto included.....	\$6,152,857	\$5,260	\$531,766	\$26,100	\$230,481	\$2,086,272	\$1,472,738	\$1,563,090	\$34,638	\$202,512
Contract work.....	\$6,859,586		\$349,660	\$1,900	\$231,364	\$3,561,079	\$867,686	\$1,730,243	\$62,644	\$55,010
Materials used, total cost.....	\$75,861,188	\$217,068	\$9,098,196	\$486,015	\$4,156,919	\$22,339,447	\$10,490,474	\$24,267,122	\$1,695,950	\$3,109,997
Silk—										
Raw—										
Pounds.....	11,572,783	46,255	1,320,509	78,100	739,004	3,553,090	1,006,793	3,970,044	262,112	596,876
Cost.....	\$45,318,416	\$184,171	\$5,067,381	\$201,560	\$2,944,279	\$13,920,194	\$3,934,433	\$15,419,221	\$1,179,447	\$2,467,730
Spun—										
Pounds.....	1,951,201	523	716,607	50,800	135,976	154,201	249,896	454,074	52,145	136,979
Cost.....	\$4,310,061	\$1,361	\$1,609,152	\$138,400	\$137,926	\$341,298	\$734,099	\$876,485	\$139,909	\$331,431
Artificial—										
Pounds.....	466,151			20,139	21,172	8,066	289,282	127,192	300	
Cost.....	\$1,623,473			\$78,989	\$74,511	\$35,074	\$1,039,783	\$394,126	\$990	
Yarns, other than silk—										
Cotton—										
Pounds.....	8,387,048	15,000	1,359,021	138,711	724,594	1,054,973	1,197,943	2,591,135	969,426	336,245
Cost.....	\$2,586,954	\$4,650	\$439,025	\$25,568	\$264,580	\$402,480	\$401,841	\$665,915	\$290,214	\$92,681
Mercerized cotton—										
Pounds.....	631,247	500	21,560	3,857	5,348	261,905	101,943	227,944	5,550	2,640
Cost.....	\$471,035	\$500	\$7,337	\$3,559	\$4,470	\$208,204	\$74,770	\$168,025	\$2,225	\$1,945
Woolen—										
Pounds.....	443,155	2,600	22,780	6,856	141,634	25,725	184,340	48,870	7,800	2,550
Cost.....	\$409,867	\$2,600	\$27,290	\$4,600	\$97,756	\$27,962	\$191,816	\$47,969	\$6,040	\$3,834
Mohair—										
Pounds.....	138,389		97,323	100	11,573	11,253	14,511	3,629		
Cost.....	\$137,097		\$97,029	\$145	\$14,566	\$6,784	\$15,264	\$3,309		
Other—										
Pounds.....	130,930		112	2,707	3,156	3,638	71,486	49,824		7
Cost.....	\$108,841		\$115	\$1,128	\$1,804	\$3,838	\$30,959	\$70,983		\$14
Silk purchased in partially manufactured form—										
Organzine and tram—										
Pounds.....	3,236,744	726	28,844	434	44,464	1,343,081	603,623	1,202,805	1,200	11,567
Cost.....	\$14,552,425	\$4,980	\$144,358	\$1,065	\$202,364	\$5,832,154	\$2,919,456	\$5,390,466	\$4,567	\$52,415
Fringe and floss—										
Pounds.....	49,811			5,350		4,421		32,960		
Cost.....	\$187,159			\$21,810		\$20,211		\$116,663		
Chemicals and dyestuffs.....	\$96,992	\$9,233	\$268,675		\$95,635	\$191,553	\$52,066	\$26,363	\$827	\$22,640
Fuel.....	\$862,220	\$1,728	\$121,266	\$1,959	\$42,942	\$108,362	\$108,362	\$285,415	\$12,748	\$35,045
Rent of power and heat.....	\$268,336	\$430	\$7,795	\$500	\$2,030	\$151,679	\$99,549	\$31,816	\$7,553	\$6,984
Mil supplies.....	\$678,585	\$333	\$17,640	\$902	\$16,586	\$228,670	\$22,377	\$221,270	\$20,752	\$20,155
All other materials.....	\$3,511,586	\$7,067	\$1,266,232	\$4,030	\$238,949	\$611,381	\$797,506	\$451,380	\$24,979	\$80,062
Freight.....	\$238,141	\$15	\$4,901	\$1,300	\$18,521	\$55,250	\$19,718	\$97,716	\$5,659	\$15,061
Raw silk thrown under contract:										
Organzine, pounds.....	3,635,384		131,038			702,055	359,248	2,288,174	68,000	86,869
Tram, pounds.....	3,406,467		85,416			987,033	345,830	1,828,125	20,000	200,063
Products, total value.....	\$133,288,072	\$351,949	\$15,623,693	\$735,242	\$7,012,002	\$42,862,907	\$20,181,212	\$39,333,520	\$2,555,986	\$4,631,501
Organzine and tram made for sale—										
Pounds.....	2,025,645	2,666	44,241	27,500	65,482	171,187	99,866	1,396,424		218,279
Value.....	\$9,190,650	\$12,000	\$365,617	\$137,500	\$293,405	\$777,250	\$420,718	\$6,124,717		\$1,059,383
Spun silk made for sale—										
Pounds.....	570,529	2,170	328,863			92,098	136,290	11,108		
Value.....	\$1,660,647	\$7,300	\$1,046,068			\$321,049	\$349,597	\$36,633		
Machine twist—										
Pounds.....	932,998	36,120	614,729	400	134,256		35,325	28,223		83,945
Value.....	\$5,521,055	\$218,337	\$3,618,824	\$2,000	\$746,296		\$191,628	\$196,409		\$547,561
Sewing, embroidery, and wash silks—										
Pounds.....	606,357	8,739	167,485	500	262,076		12,960	49,480		105,117
Value.....	\$3,927,954	\$69,912	\$953,636	\$2,500	\$1,852,108		\$77,752	\$296,884		\$675,162
Fringe and floss silks—										
Pounds.....	205,354	480	220	49,700	6,610	30,146	12,125	106,073		
Value.....	\$697,062	\$2,400	\$1,122	\$149,100	\$34,906	\$95,305	\$70,056	\$344,173		
Broad silk goods—										
Plain and fancies—										
All-silk—										
Yards, single width.....	68,393,042	450	1,842,978		1,049,292	32,971,793	4,672,699	25,404,097		2,451,733
Value.....	\$40,741,480	\$500	\$1,442,430		\$998,576	\$19,031,558	\$3,196,327	\$14,910,036		\$1,162,053
Silk mixed—										
Yards, single width.....	9,061,025		166,353		2,876,345	1,822,091	681,761	1,061,199	1,000,000	1,453,276
Value.....	\$5,343,472		\$132,005		\$1,931,547	\$1,404,546	\$432,694	\$662,865	\$360,000	\$419,815
Jacquard—										
All-silk—										
Yards, single width.....	8,143,091	450	9,582		100,000	5,480,654	1,057,489	894,916	600,000	
Value.....	\$5,927,063	\$500	\$5,365		\$45,000	\$4,388,069	\$734,045	\$586,084	\$168,000	
Silk mixed—										
Yards, single width.....	2,336,120		682			1,220,195	209,191	406,052	500,000	
Value.....	\$1,229,648		\$529			\$749,466	\$108,903	\$235,750	\$135,000	

1 Does not include unskilled employees.

TABLE 25.—SILK AND SILK GOODS—DETAILED SUMMARY, BY STATES: 1905—Continued.

	United States.	California.	Connecticut.	Illinois.	Massachusetts.	New Jersey.	New York.	Pennsylvania.	Rhode Island.	All other states.
Products—Continued.										
Broad silk goods—Continued.										
Piece-dyed—										
All-silk—										
Yards, single width.....	21,334,584		4,959,991		100,000	3,574,771	4,272,422	7,325,103	43,979	698,318
Value.....	\$9,276,445		\$2,208,952		\$6,000	\$2,175,034	\$1,906,468	\$2,703,666	\$43,979	\$166,346
Silk mixed—										
Yards, single width.....	15,603,353		582,580		50,000	1,331,233	3,247	8,461,557	4,353,958	820,778
Value.....	\$4,399,654		\$248,318		\$16,000	\$439,935	\$4,321	\$1,718,129	\$1,624,457	\$348,494
Other broad goods—										
Velvets—										
Yards, single width.....	7,262,315		7,154,387					107,928		
Value.....	\$3,161,206		\$3,096,449					\$64,757		
Plushes—										
Yards, single width.....	2,547,367		1,894,107			452,260	200,600	21,000		
Value.....	\$1,340,815		\$888,365			\$363,882	\$187,500	\$10,868		
Tapestries—										
Yards, single width.....	1,193,326					659,896		533,520		
Value.....	\$994,636					\$454,774		\$539,262		
Upholstery—										
Yards, single width.....	572,884		56,729		7,400	350,000		128,748		
Value.....	\$565,946		\$126,353		\$2,950	\$300,000		\$136,643		
Ribbons and laces—										
Ribbons.....	\$21,890,604		\$1,153,983		\$35,232	\$10,036,331	\$4,983,712	\$5,573,799		\$107,547
Laces, nets, veils, veiling, etc.....	\$745,489					\$414,891	\$291,400		\$39,198	
Embroideries.....										
Value.....	\$112,362		\$750			\$6,112	\$165,500			
Fringes and gimps.....										
Value.....	\$1,016,954		\$7,672	\$85,168	\$3,100	\$27,000	\$544,544	\$349,570		
Braids and bindings.....										
Value.....	\$3,433,977		\$72,571	\$143,659	\$337,380	\$404,456	\$2,042,365	\$424,277	\$69,269	
Trimmings—										
Tailors'.....	\$700				\$600		\$100			
Ladies' dress.....	\$1,549,391	\$17,000		\$20,115	\$9,050		\$967,143	\$536,083		
Cloak.....	\$53,640				\$8,640		\$15,000	\$30,000		
Milliners'.....	\$1,333,735						\$703,742	\$629,993		
Military.....	\$170,231						\$400,000	\$130,231		
All other products.....										
Value.....	\$5,227,806	\$24,000	\$74,470	\$194,700	\$383,821	\$55,408	\$2,539,445	\$1,092,372	\$54,283	\$9,301
Amount received for contract work.....	\$3,716,030		\$230,614		\$26,342	\$998,890	\$268,252	\$1,994,319	\$61,800	\$135,839
Machinery:										
Spindles, total number.....	2,453,588	3,846	196,624	11,880	107,787	527,409	251,367	1,203,617	22,644	128,414
Organzine—										
First time over, number.....	652,950	838	13,290		9,454	125,754	55,938	414,046	3,400	30,200
Second time over, number.....	415,897	38	9,642		10,156	76,370	32,260	267,301	1,436	18,694
Tram, number.....	128,531	1,158	5,240		2,780	30,549	14,170	62,418	2,000	10,216
Cleaning or polishing, number.....	8,494		3,486		845	747	2,034	588		794
Doubling, number.....	257,748	576	16,515	1,690	19,396	49,965	31,478	122,473	1,414	14,241
Quilling, number.....	102,115		10,167	1,800	3,318	46,039	9,144	26,534	1,290	3,823
Reeling, number.....	66,525	60	4,290	420	3,502	14,140	5,906	33,989	464	3,754
Spinning and twisting, number.....	196,612	42	78,532	2,270	35,029	4,792	18,913	41,348	720	14,966
Winding, number.....	624,686	1,134	55,462	5,700	23,307	179,053	81,464	234,920	11,920	31,726
Looms—										
Power, total number.....	59,775	3	4,260	44	1,581	23,923	6,944	19,227	1,706	2,087
Plain—										
36 inches or over, reed space, number.....	26,338	1	2,194		945	8,851	2,581	8,679	1,626	1,461
Under 36 inches, reed space, number.....	18,022	1	885	12	492	6,913	1,753	7,272	80	614
German (warps on top) ribbons, number.....	3,875	1	105	15		1,710	1,073	971		
High-speed ribbons, number.....	3,966		303	2	144	1,631	932	942		12
Jacquards—										
Ribbons, number.....	1,682		352	15		677	223	415		
Broad silks, number.....	5,892		421			4,141	382	948		
Hand, total number.....										
12.....	283	12		60	29	12	45	109		16
Plain—										
36 inches or over, reed space, number.....	54	1			1	11	35	6		
Under 36 inches, reed space, number.....	141	10			28	1	8	94		
German (warps on top) ribbons, number.....	64	1		40				7		16
Jacquards—										
Ribbons, number.....	22			20				2		
Broad silks, number.....	2						2			
Other machines—										
Power—										
Knitting—										
Warp, number.....	221					7	129	85		
Knitting or crochet, number.....	136		3	10	3	6		26		
Roundhead, number.....	25				1			9		
Swiss-ribbed, number.....	3				3					
Milanese or traverse, number.....	46					1	39	6		
Beamers, number.....	309		39		7	121	24	104	5	
Braiders, number.....	25,500		1,429	540	2,129	2,138	13,144	4,900	1,100	120
Chenille, number.....	268		53	26	2	12	76	99		
Curtain, number.....	80		80							
Embroidery, shiffle or power, number.....										
100.....	100		4			5	49	47		
Gimp mills, number.....	166		3	14	6		99	39		
Lavers or lace, number.....	93		28			12	53			
Sewing, number.....	1,905		37	17	19	127	1,614	89		2
Slide cord, number.....	104		37	8	1	1	44	13		
Spooling tables, number.....	851	20	385	25	105	9	106	147		54
Twist, number.....	84	25		4	6	2	28	19		
Warping, number.....	4,171	1	306	13	90	1,667	488	1,394	114	98
Hand—										
Braiders, number.....	30				25		5			
Chenille, number.....	13	2				4	4	3		
Embroidery, hand stitched, number.....	17					1	4	11		1
Sewing, number.....	40		3		1	18	4	10	4	
Slide cord, number.....	3							3		
Spooling tables, number.....	79		21		6		12	40		
Twist, number.....	11		1			3	7			
Warping, number.....	582	1	10		5	264	186	123		43
Other hand machines, number.....	208		4			8	197	4		

TABLE 25.—SILK AND SILK GOODS—DETAILED SUMMARY, BY STATES: 1905—Continued.

	United States.	California.	Connecticut.	Illinois.	Massachusetts.	New Jersey.	New York.	Pennsylvania.	Rhode Island.	All other states.
Dyeing, finishing, and printing:										
Skein dyeing—										
Silk—										
Colors, pounds.....	1,577,493	30,274	584,627		249,322	569,755	45,750	11,958		85,807
Black, pounds.....	1,038,968	14,630	326,795		335,214	173,736	8,100	57,644		122,949
Spun—										
Colors, pounds.....	562,052	373	404,587		42,728	31,023	76,958		6,383	
Black, pounds.....	59,384	50	41,571		9,381	108	36	8,238		
Cotton—										
Colors, pounds.....	645,142		94,179		81,195	446,055	23,713			
Black, pounds.....	907,698		456,430		351,183	27,985	447	69,628	2,025	
Wool, colors, pounds.....	83,673				83,673					
Piece dyeing—										
All-silk, yards, single width.....	12,092,654					11,312,964	779,690			
Silk and spun, yards, single width.....	1,309,510		1,279,260				30,250			
Silk and cotton, yards, single width.....	7,158,037		1,245,462			5,643,775	268,800			
Silk and wool, yards, single width.....	42,065		42,065							
Finishing—										
All-silk, pieces (60 yards).....	6,323,595		800,793			5,023,982	322,575	170,292		5,953
Silk and cotton, pieces (60 yards).....	623,297		240,687			109,154	265,153	6,667	1,636	
Silk and wool, pieces (60 yards).....	1,236		636			600				
Printing—										
Printed in warps, yards, single width.....	118,640		16,876			101,764				
Printed in pieces—										
All-silk, yards, single width.....	2,955,568		2,626,469			329,099				
Silk and spun, yards, single width.....	293,480					293,480				
Silk and cotton, yards, single width.....	38,897		38,897							
Power:										
Number of establishments reporting.....	608	4	43	3	16	236	117	163	8	18
Total horsepower.....	78,888	66	8,662	175	4,471	18,999	7,900	31,050	1,745	5,820
Owned—										
Engines—										
Steam—										
Number.....	468	1	66	2	18	117	57	185	6	16
Horsepower.....	56,362	60	6,174	85	2,130	12,718	4,720	26,035	800	3,640
Gas and gasoline—										
Number.....	50		1			16	17	16		
Horsepower.....	937		35			341	204	357		
Water wheels—										
Number.....	85		21		23	11	7	4	5	14
Horsepower.....	6,965		1,492		2,053	425	423	672	400	1,410
Water motors—										
Number.....	2		1			1				
Horsepower.....	9		2			7				
Electric motors—										
Number.....	1,412		46	1	9	120	91	870	2	273
Horsepower.....	7,128		841	45	250	2,096	650	2,660	100	486
Other power, horsepower.....	355					55		300		
Rented—										
Electric motors—										
Number.....	745	3	4	2	1	67	96	15	532	25
Horsepower.....	2,393	6	50	45	10	799	606	303	330	244
Other kind, horsepower.....	4,739		68		28	2,558	1,297	723	25	40
Furnished to other establishments, horsepower.....	880		17			283	169	356		55

FLAX, HEMP, AND JUTE PRODUCTS

FLAX, HEMP, AND JUTE PRODUCTS.

By EDWARD STANWOOD, Expert Special Agent.

Hardly any general class of manufactures is more difficult of treatment, either as a whole or in detail, than that of flax, hemp, and jute. The materials are closely allied, in that they are all vegetable fibers, and in that two, and sometimes all three, are used in the same establishment, and not infrequently introduced into the same fabric. Yet the products are so diverse, ranging from gunny bags and ships' hawsers to fine toweling and sewing thread, that the propriety of embracing all these varied industries in a single class, which seems so evident when materials only are considered, practically disappears. Another difficulty which was encountered in the taking of the Twelfth Census has reappeared, and seems insuperable. It arises out of the fact, already referred to, that the class includes a great variety of industries and products. There are in all only 133 establishments reporting. A list of the products includes yarn and twine made from each one of the three fibers; linen thread; woven fabrics, partly or wholly of linen; rope and binder twine of manila or of sisal, or of the two mixed; gunny bagging, jute burlaps, carpets, rugs, and other minor products. Among so many different classes it is necessarily the fact that some of them are represented in the list of establishments by one or two only. It follows that if the statistics of the different classes of materials and products were published, they could be used to ascertain the quantities and values reported for some of the individual establishments. This fact was recognized by some of the leading manufacturers, and in deference to their wishes the details have not been published for the census of 1905.

The number of establishments reported in 1905 was 133, a decrease of 8 from 1900. This item is, however, the only one presented in Table 1 which shows a decrease, with the single exception of the number of children employed, and even their aggregate wages show an increase. The establishments were distributed among the several branches of the industry as follows:

INDUSTRY.	1905	1900
Cordage and twine.....	102	105
Jute and jute goods.....	16	18
Linen manufacture.....	15	18

Table 1 presents a comparative summary of the statistics for the industry as a whole for the censuses from 1890 to 1905.

TABLE 1.—*Flax, hemp, and jute products—comparative summary, with per cent of increase: 1890 to 1905.*

	CENSUS.			PER CENT OF INCREASE.	
	1905 ¹	1900	1890	1900 to 1905	1890 to 1900
Number of establishments.....	133	141	162	25.7	213.0
Capital.....	\$54,423,531	\$41,991,762	\$27,731,649	29.6	51.4
Salaried officials, clerks, etc., number.....	992	641	³ 458	54.8	40.0
Salaries.....	\$1,494,732	\$957,190	³ \$609,170	56.2	57.1
Wage-earners, average number.....	24,508	20,903	15,519	17.2	34.7
Total wages.....	\$8,580,785	\$6,331,741	\$4,872,389	35.5	30.0
Men 16 years and over.....	12,343	9,996	7,367	23.5	35.7
Wages.....	\$5,349,427	\$3,824,555	\$2,952,270	39.9	29.5
Women 16 years and over.....	10,072	8,648	6,923	16.5	24.9
Wages.....	\$2,851,429	\$2,174,152	\$1,733,289	31.2	25.4
Children under 16 years.....	2,093	2,259	1,229	27.4	83.8
Wages.....	\$379,929	\$333,034	\$186,830	14.1	78.3
Miscellaneous expenses.....	\$3,683,107	\$2,678,286	\$1,431,932	37.5	87.0
Cost of materials used.....	\$44,890,546	\$32,197,885	\$26,148,344	39.4	23.1
Value of products.....	\$62,909,329	\$47,601,607	\$37,313,021	32.2	27.6

¹ Exclusive of the statistics of 4 establishments engaged primarily in the manufacture of other products. These establishments manufactured flax, hemp, and jute products to the value of \$606,750.

² Decrease.

³ Includes proprietors and firm members, with their salaries; number only reported in 1900 and 1905, but not included in this table.

Table 1 shows that from 1900 to 1905 there was an increase of 29.6 per cent in capital; of 17.2 per cent in the average number of wage-earners; of 35.5 per cent in the wages they received; of 39.4 per cent in the cost of materials used; and of 32.2 per cent in the value of products. It should be said, however, that these percentages signify nothing more than that the industry as a whole has been expanding rapidly, for the aggregates consist of widely diverse materials. An increase in the amount of wages paid to labor at a larger ratio than the increase in the number employed might or might not indicate a rise in the rate of wages, for it might be a consequence of the employment of a much greater proportion of highly skilled workmen. For similar reasons the lower rate of increase of the value of the products, as compared with that of the materials used, does not necessarily imply a smaller profit on manufactures, but may be due to a larger proportional manufacture of classes of goods, the production of which is so great that a low rate of profit is satisfactory. The actual facts could only be ascertained by detailed consideration of statistics which it is impossible to obtain.

Table 2 is a summary of the industry, by states, for 1905.

TABLE 2.—FLAX, HEMP, AND JUTE PRODUCTS—

	United States.	Alabama.	Connecticut.	Kentucky.
1 Number of establishments	133	4	5	3
2 Capital, total	\$54,423,531	\$396,181	\$280,258	\$943,373
3 Land	\$3,459,035	\$15,000	\$23,000	\$38,000
4 Buildings	\$8,552,426	\$58,639	\$59,300	\$140,705
5 Machinery, tools, and implements	\$13,920,759	\$217,763	\$109,800	\$488,693
6 Cash and sundries	\$28,091,311	\$104,779	\$88,158	\$275,975
7 Proprietors and firm members	54		3	
8 Salaried officials, clerks, etc.:				
9 Total number	992	12	5	23
10 Total salaries	\$1,494,732	\$13,100	\$4,886	\$26,530
11 Officers of corporations—				
12 Number	141	2	2	7
13 Salaries	\$563,234	\$3,900	\$1,950	\$13,860
14 General superintendents, managers, clerks, etc.:				
15 Total number	851	10	3	16
16 Total salaries	\$331,498	\$9,200	\$2,936	\$12,670
17 Men—				
18 Number	719	8	3	15
19 Salaries	\$843,050	\$8,000	\$2,936	\$12,046
20 Women—				
21 Number	132	2		1
22 Salaries	\$88,448	\$1,200		\$624
23 Wage-earners, including pieceworkers, and total wages:				
24 Greatest number employed at any one time during the year	27,870	321	240	546
25 Least number employed at any one time during the year	21,773	265	199	425
26 Average number	24,508	293	202	452
27 Total wages	\$8,580,785	\$63,501	\$56,395	\$115,051
28 Men 16 years and over—				
29 Average number	12,343	115	111	199
30 Wages	\$5,349,427	\$31,808	\$35,980	\$67,867
31 Women 16 years and over—				
32 Average number	10,072	136	91	153
33 Wages	\$2,851,429	\$25,770	\$20,415	\$32,069
34 Children under 16 years—				
35 Average number	2,093	42		100
36 Wages	\$379,929	\$5,923		\$15,115
37 Miscellaneous expenses, total	\$3,683,107	\$30,308	\$15,799	\$43,957
38 Rent of works	\$153,420	\$900	\$20	\$180
39 Taxes	\$311,709	\$1,539	\$1,748	\$3,604
40 Rent of offices, interest, insurance, and all other sundry expenses not hitherto included	\$2,963,984	\$27,869	\$14,031	\$40,173
41 Contract work	\$253,994			
42 Materials used, aggregate cost	\$44,890,546	\$381,422	\$258,191	\$307,097
43 Principal materials, total cost	\$41,672,312	\$358,082	\$251,350	\$289,477
44 Purchased in raw state	\$38,566,575	\$338,082	\$233,754	\$241,933
45 Purchased in partially manufactured form	\$3,105,737	\$20,000	\$17,596	\$47,544
46 Fuel	\$605,997	\$10,964	\$1,346	\$9,614
47 Rent of power and heat	\$20,147			
48 Mill supplies	\$568,407	\$1,834	\$2,079	\$8,006
49 All other materials	\$1,530,039	\$10,155	\$1,651	
50 Freight	\$193,644	\$387	\$1,765	
51 Products, total value	\$62,939,329	\$498,931	\$360,797	\$597,694
52 Power:				
53 Number of establishments reporting	127	4	5	3
54 Total horsepower	73,518	625	910	1,448
55 Owned—				
56 Engines—				
57 Steam—				
58 Number	205	3	1	1
59 Horsepower	52,369	560	15	1,198
60 Gas and gasoline—				
61 Number	6			
62 Horsepower	98			
63 Water wheels—				
64 Number	85	1	9	1
65 Horsepower	12,589	65	895	250
66 Electric motors—				
67 Number	191			
68 Horsepower	7,534			
69 Rented—				
70 Electric motors—				
71 Number	17			
72 Horsepower	737			
73 Other kind, horsepower	191			
74 Furnished to other establishments, horsepower	150			

FLAX, HEMP, AND JUTE PRODUCTS.

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DETAILED SUMMARY, BY STATES: 1905.

Missouri.	New York.	North Carolina.	Ohio.	Pennsylvania.	Rhode Island.	All other states. ¹	
4	20	6	16	20	4	59	1
\$2,014,396	\$14,416,500	\$885,938	\$2,306,230	\$4,797,606	\$121,917	\$28,281,132	2
\$54,443	\$636,409	\$26,190	\$214,871	\$245,912	\$2,500	\$2,202,710	3
\$156,557	\$1,942,794	\$105,530	\$442,240	\$620,361	\$20,595	\$5,405,705	4
\$302,913	\$4,112,246	\$425,235	\$610,046	\$892,796	\$33,251	\$6,728,016	5
\$1,500,483	\$7,725,051	\$328,983	\$1,039,073	\$3,038,537	\$65,571	\$13,924,701	6
	8	2		16	4	21	7
78	275	20	70	80	4	425	8
\$89,351	\$412,104	\$21,496	\$103,730	\$155,587	\$4,080	\$663,868	9
16	31	7	10	15	2	49	10
\$34,550	\$163,511	\$9,865	\$44,458	\$78,841	\$2,300	\$209,999	11
62	244	13	60	65	2	376	12
\$54,801	\$248,593	\$11,631	\$59,272	\$76,746	\$1,780	\$453,869	13
39	200	13	45	59	2	335	14
\$32,571	\$222,672	\$11,631	\$50,646	\$73,868	\$1,780	\$426,900	15
23	44		15	6		41	16
\$22,230	\$25,921		\$8,626	\$2,878		\$26,969	17
883	7,482	630	1,510	2,370	122	13,766	18
765	5,856	542	779	1,986	88	10,868	19
806	6,742	543	1,070	2,232	98	12,070	20
\$280,004	\$2,417,190	\$100,731	\$361,286	\$666,163	\$28,776	\$4,491,688	21
273	3,104	206	863	979	45	6,448	22
\$123,685	\$1,391,926	\$50,400	\$301,294	\$408,576	\$16,788	\$2,921,103	23
302	3,493	192	186	786	49	4,484	24
\$149,838	\$998,154	\$32,605	\$55,351	\$185,199	\$11,308	\$1,340,720	25
31	145	145	21	467	4	1,138	26
\$6,481	\$27,110	\$17,726	\$4,641	\$72,388	\$580	\$229,865	27
\$277,720	\$1,406,410	\$43,913	\$212,108	\$185,920	\$12,619	\$1,454,353	28
\$12,300	\$121,823	\$5,000		\$2,496	\$2,400	\$8,401	29
\$9,125	\$71,301	\$2,880	\$21,842	\$6,724	\$379	\$192,567	30
\$250,083	\$969,286	\$36,033	\$190,266	\$176,700	\$3,040	\$1,251,503	31
\$6,312	\$244,000				\$1,800	\$1,882	32
\$1,143,782	\$10,607,517	\$814,648	\$2,517,923	\$3,647,841	\$120,705	\$25,091,420	33
\$1,049,078	\$3,403,976	\$753,357	\$2,424,080	\$3,422,912	\$110,263	\$23,609,737	34
\$293,430	\$3,076,285	\$640,585	\$2,349,229	\$3,300,465	\$26,520	\$22,066,292	35
\$755,648	\$327,691	\$112,772	\$74,851	\$122,447	\$83,743	\$1,543,445	36
\$10,630	\$181,901	\$15,696	\$37,787	\$35,980	\$1,608	\$294,471	37
	\$1,141			\$2,175	\$1,400	\$15,431	38
\$36,033	\$185,812	\$24,265	\$8,149	\$24,734	\$274	\$579,121	39
\$12,250	\$736,423	\$14,060	\$45,167	\$182,452	\$7,060	\$550,821	40
\$24,791	\$78,264	\$7,170	\$4,740	\$29,588	\$100	\$41,839	41
\$1,788,519	\$15,866,386	\$1,035,648	\$3,250,440	\$5,138,054	\$177,638	\$34,225,222	42
4	19	6	16	18	4	56	43
2,017	16,418	1,230	3,313	4,425	275	42,857	44
8	52	8	17	18	4	88	45
1,975	15,355	837	3,265	4,081	115	24,968	46
			1	1		4	47
			20	6		72	48
	5	9		5	5	50	49
	590	170		150	140	10,329	50
4	15	6	2	8		156	51
42	358	223	28	81		6,802	52
	3			1		13	53
	115			5		617	54
				102	20	69	55
	5			20	25	100	56

¹ Includes establishments distributed as follows: California, 2; Delaware, 1; Georgia, 2; Illinois, 3; Indiana, 2; Maine, 2; Massachusetts, 25; Mississippi, 1; New Hampshire, 1; New Jersey, 9; Oregon, 1; South Carolina, 2; Tennessee, 2; Virginia, 1; Wisconsin, 5.

The geographic distribution of the industry is substantially the same as at the census of 1900, and no general deduction from Table 2 is necessary.

CORDAGE AND TWINE.

By far the largest branch of the industry is that of the manufacture of cordage and twine, in which more than three-fourths of the total number of establish-

ments for the whole industry, two-thirds of all the capital, and three-fifths of the persons employed are engaged. Table 3 presents a comparative summary for this branch of the industry for the censuses from 1880 to 1905.

An increase from 1900 to 1905 is shown in every item of Table 3 with the exception of the number of establishments reported and the number of children employed.

TABLE 3.—CORDAGE AND TWINE—COMPARATIVE SUMMARY, WITH PER CENT OF INCREASE: 1880 TO 1905.

	CENSUS.				PER CENT OF INCREASE.		
	1905 ¹	1900	1890	1880	1900 to 1905	1890 to 1900	1880 to 1890
Number of establishments.....	102	105	150	165	2.9	30.0	29.1
Capital.....	\$37,110,521	\$29,275,470	\$23,351,883	\$7,140,475	26.8	25.4	227.0
Salaried officials, clerks, etc., number.....	731	436	414	(*)	67.7	5.3	.....
Salaries.....	\$999,860	\$666,936	\$560,639	(*)	49.9	18.9	.....
Wage-earners, average number.....	14,614	13,114	12,385	5,435	11.4	5.9	127.9
Total wages.....	\$5,338,178	\$4,113,112	\$3,976,232	\$1,558,676	29.8	3.4	155.1
Men 16 years and over.....	8,646	7,341	6,412	2,926	17.8	14.5	119.1
Wages.....	\$3,779,835	\$2,751,787	\$2,547,985	(*)	37.4	8.0	.....
Women 16 years and over.....	4,999	4,797	5,010	1,480	4.2	24.3	238.5
Wages.....	\$1,392,043	\$1,212,823	\$1,280,065	(*)	14.8	25.3	.....
Children under 16 years.....	969	976	963	1,029	20.7	1.3	26.4
Wages.....	\$166,300	\$148,502	\$148,182	(*)	12.0	0.2	.....
Miscellaneous expenses.....	\$2,508,600	\$1,716,205	\$1,020,697	(*)	46.2	63.1	.....
Cost of materials used.....	\$36,095,747	\$26,632,006	\$24,051,666	\$9,330,261	35.5	10.7	157.8
Value of products.....	\$48,017,139	\$37,849,651	\$33,312,559	\$12,492,171	26.9	13.6	166.7

¹ Exclusive of the statistics of 3 establishments engaged primarily in the manufacture of other products. These establishments manufactured cordage and twine to the value of \$578,649.

² Decrease.

³ Includes proprietors and firm members, with their salaries; number only reported in 1900 and 1905, but not included in this table.

⁴ Not reported separately.

⁵ Not reported.

It will further be noted that these increases were greater from 1900 to 1905 in all of the essential elements of comparison than in the preceding decade, 1890 to 1900. Capital increased, in round numbers, 27 per cent, the number of wage-earners 11 per cent, the wages paid 30 per cent, the cost of materials 35 per cent, and the value of products 27 per cent. The figures for the two chief products, binder twine and rope, are presented in the following tabular statement for the censuses of 1900 and 1905. These totals have been compiled from the reports of the mills, supplemented in a few cases by Office estimates:

Quantity and value of binder twine and rope: 1905 and 1900.

CENSUS.	BINDER TWINE.		ROPE.	
	Pounds.	Value.	Pounds.	Value.
1905.....	191,796,047	\$19,514,992	200,824,974	\$19,668,169
1900.....	165,609,429	14,185,581	137,546,204	12,510,793

JUTE AND JUTE GOODS.

Table 4 presents a comparative summary for the manufacture of jute and jute goods for the censuses of 1905 and 1900.

TABLE 4.—Jute and jute goods—comparative summary, with per cent of increase: 1905 and 1900.

	1905 ¹	1900	Per cent of increase.
Number of establishments.....	16	18	21.1
Capital.....	\$11,019,132	\$7,027,293	56.8
Salaried officials, clerks, etc., number.....	152	88	72.7
Salaries.....	\$330,041	\$147,313	124.0
Wage-earners, average number.....	6,033	4,506	35.0
Total wages.....	\$1,917,986	\$1,181,790	62.3
Men 16 years and over.....	2,437	1,611	51.3
Wages.....	\$948,457	\$579,877	63.6
Women 16 years and over.....	3,083	2,064	49.4
Wages.....	\$876,994	\$480,322	82.4
Children under 16 years.....	563	831	23.3
Wages.....	\$92,535	\$121,181	23.3
Miscellaneous expenses.....	\$771,106	\$574,986	34.1
Cost of materials used.....	\$5,054,130	\$3,015,362	67.6
Value of products.....	\$9,065,802	\$5,383,797	68.4

¹ Exclusive of the statistics of 1 establishment engaged primarily in the manufacture of other products. This establishment manufactured jute and jute goods to the value of \$28,101.

² Decrease.

The manufacture of jute goods is a comparatively new industry, and has increased greatly in the last five years. The items of capital, salaries, wages, materials, and value of products in Table 4 show an increase of more than 50 per cent in the five years since 1900.

LINEN GOODS.

Table 5 presents a comparative summary for linen goods from 1890 to 1905.

Considering all items of Table 5, the rate of increase from 1900 to 1905 in the manufacture of linen goods has been somewhat less than in the other two departments of the combined industry, but the result as a whole shows healthy progress. It will be seen that whereas the capital employed more than doubled in the ten years from 1890 to 1900, in the succeeding five years it increased but 10.6 per cent. The increase in the other principal items is larger, but is on the whole fairly moderate, as compared with similar items in the other departments of the industry. It is well known that the linen manufacture is an exotic in this country. Relatively little attention is given to the preparation of the flax fiber for manufacture, and that which is prepared is adapted only to the coarser processes. Imported material is employed almost

exclusively in the spinning of yarns and the weaving of fabrics in the United States. There has never been a successful attempt in the country to produce fine goods at a profit.

TABLE 5.—*Linen goods—comparative summary, with per cent of increase: 1890 to 1905.*

	CENSUS.			PER CENT OF INCREASE.	
	1905	1900	1890 ¹	1900 to 1905	1890 to 1900
Number of establishments.....	15	18	5	² 16.7	260.0
Capital.....	\$6,293,878	\$5,638,999	\$2,734,130	10.6	108.1
Salaries, officials, clerks, etc., number.....	109	117	³ 26	² 6.8	350.0
Salaries.....	\$164,831	\$142,941	³ \$25,530	15.3	459.9
Wage-earners, average number.....	3,811	3,283	1,940	16.1	69.2
Total wages.....	\$1,324,621	\$1,036,839	\$527,572	27.8	96.5
Men 16 years and over.....	1,260	1,044	648	20.7	61.1
Wages.....	\$621,135	\$492,891	\$255,409	26.0	93.0
Women 16 years and over.....	1,990	1,787	1,193	11.4	49.8
Wages.....	\$582,392	\$480,597	\$256,187	21.2	87.6
Children under 16 years.....	561	452	99	24.1	356.6
Wages.....	\$121,094	\$63,351	\$15,976	91.1	296.5
Miscellaneous expenses.....	\$403,401	\$387,095	\$242,977	4.2	59.3
Cost of materials used.....	\$3,740,669	\$2,550,517	\$1,594,769	46.7	59.9
Value of products.....	\$5,856,388	\$4,368,159	\$2,880,341	34.1	51.7

¹ Includes 2 establishments classified as "thread, linen."

² Decrease.

³ Includes proprietors and firm members, with their salaries; number only reported in 1900 and 1905, but not included in this table.

DYEING AND FINISHING TEXTILES

DYEING AND FINISHING TEXTILES.

By EDWARD STANWOOD, Expert Special Agent.

The bleaching, dyeing, mercerizing, or printing of raw fibers, yarns, and woven cloth are not, strictly speaking, processes of textile manufacture; but owing to the common practice in this country of combining one or more of those processes with spinning and weaving in the same establishment, it becomes necessary either to eliminate from the reports of those establishments an estimated part of the capital, wages, expenses, and value of products, in order to confine the inquiry to textile manufacture, or to treat the establishments which perform those processes only as engaged in the textile industry. The first named method is quite impracticable. Indeed, it has not been found feasible to ascertain even the quantity of yarn and fabrics operated upon in the wool industry. It follows that the census does not present full statistics of dyeing and finishing. The facts given in the present report are almost exclusively those concerning the independent establishments, but it is possible to present more or less complete statistics regarding the quantities of cotton and silk goods operated upon. The schedules of inquiry submitted to cotton manufacturers provided for a return of the cost of chemicals and dyestuffs, the quantities in detail of the goods treated, and the value added by the work done. The silk schedules required a statement of the quantity of goods treated and the cost of chemicals and dyestuffs. The wool schedules asked for the cost of such chemicals only. Yet the carpet industry uses none but dyed woolen yarn, and, with the exception of such articles as flannels and blankets, practically all the products of woolen and worsted mills are colored, either in the yarn or in the piece. The importance of the omission of the amount of dyeing in the establishments engaged in the wool manufacture may be seen in the fact drawn from one of the tables subsequently presented, that the cost of chemicals and dyestuffs consumed by them in 1905 was \$9,177,681, which was more than one-half of the \$16,095,300, the cost of such materials consumed by all the textile establishments exclusive of independent dyeing and finishing plants.

The quantities of raw cotton, yarn, and woven goods operated upon in both independent establishments and in cotton mills are shown in Table 1.

TABLE 1.—Raw cotton, cotton yarn, and cotton piece goods operated upon in independent establishments and cotton mills: 1905.

	Total.	In independent establishments.	In cotton mills. ¹
	Pounds.	Pounds.	Pounds.
Cotton stock, total.....	87,305,304	9,907,444	77,397,860
Bleached.....	13,212,161	386,512	12,825,649
Dyed.....	74,093,143	9,520,932	64,572,211
Cotton yarns, total.....	198,074,731	61,804,220	136,270,511
Bleached.....	39,554,181	11,708,132	27,846,049
Dyed.....	154,865,926	47,676,473	107,189,453
Mercerized.....	3,654,624	2,419,615	1,235,009
Cotton piece goods, total.....	Square yards. 2,864,681,818	Square yards. 2,442,524,886	Square yards. 422,156,932
Bleached.....	1,151,932,531	988,081,883	163,850,648
Dyed.....	696,130,937	623,415,398	72,715,539
Mercerized.....	40,510,159	39,959,448	5,550,711
Printed.....	976,108,191	791,068,157	185,040,034

¹ Includes "cotton small wares."

² Includes 1,552,840 pounds of cotton yarn dyed in silk mills.

The most important of all the processes above mentioned is that of printing piece goods, and more than four-fifths of all the cloth printed was operated upon in independent establishments. Over three-fourths of the cloth bleached and nearly the whole of the cloth mercerized was also treated in such establishments. With these exceptions the greater part of the work was performed in cotton mills, which greatly exceeded the independent establishments in the amount of cotton stock and yarn dyed and bleached. In the aggregate, 2,864,681,818 square yards of cloth were operated upon, of which 976,108,191 square yards were printed, and 696,130,937 square yards were dyed.

The statement of silk yarn and silk piece goods operated upon for the census of 1905, is as follows:

	Total.	In independent establishments.	In silk mills.
Silk yarn dyed, pounds.....	11,996,819	9,370,358	2,616,461
Spun silk dyed, pounds.....	1,377,221	55,85	621,436
Piece goods dyed, yards.....	53,413,596	32,861,350	20,602,266
Piece goods printed, yards.....	8,130,163	4,723,518	3,406,585

¹ The number of yards treated is reported by silk mills in single width yards and by independent plants in square yards.

Practically two-thirds of the amount of work done under the heads of dyeing and printing silk goods was performed in independent establishments.

These are all the consolidated facts that are derivable from the census statistics. The rest of this report deals with the statistics of independent establishments

only. Table 2 is a summary which presents the main facts relating to the industry for the census of 1905, as compared with previous census enumerations.

TABLE 2.—COMPARATIVE SUMMARY, WITH PER CENT OF INCREASE: 1860 TO 1905.

	CENSUS.						PER CENT OF INCREASE.				
	1905	1900	1890	1880	1870	1860	1900 to 1905	1890 to 1900	1880 to 1890	1870 to 1880	1860 to 1870
Number of establishments.....	360	298	248	191	42	29	20.8	20.2	29.8	354.8	44.8
Capital.....	\$88,708,576	\$60,643,104	\$38,450,800	\$26,223,981	\$13,367,553	\$3,517,250	46.3	57.7	46.6	96.2	280.1
Salaries officials, clerks, etc., number.....	2,196	1,318	1,666	(²)	(²)	(²)	66.6	97.9			
Salaries.....	\$3,407,381	\$2,267,128	\$805,291	(²)	(²)	(²)	50.3	181.5			
Wage-earners, average number.....	35,565	29,776	19,601	16,698	8,894	4,005	19.4	51.9	17.4	87.7	122.1
Total wages.....	\$15,469,205	\$12,726,316	\$8,911,720	\$6,474,364	\$3,438,089	\$1,088,296	21.6	42.8	37.6	88.3	215.9
Men 16 years and over.....	28,483	24,419	16,510	12,788	6,092	3,433	16.6	47.9	29.1	109.9	77.5
Wages.....	\$13,543,724	\$11,361,194	\$8,147,844	(²)	(²)	(²)	19.2	39.4			
Women 16 years and over.....	5,658	4,253	2,298	2,038	1,393	572	33.0	85.1	12.8	46.3	143.5
Wages.....	\$1,640,093	\$1,166,972	\$620,390	(²)	(²)	(²)	40.5	88.1			
Children under 16 years.....	1,424	1,104	793	1,872	1,409	(²)	29.0	39.2	\$ 57.6	32.9	
Wages.....	\$285,388	\$198,150	\$143,486	(²)	(²)	(²)	44.0	38.1			
Miscellaneous expenses.....	\$5,978,277	\$4,137,947	\$3,131,081	(⁴)	(⁴)	(⁴)	44.5	32.2			
Cost of materials used.....	\$19,621,253	\$17,958,137	\$12,385,220	\$13,664,295	\$46,373,358	\$3,884,815	9.3	45.0	\$ 9.4	\$70.5	1,093.7
Value of products.....	\$50,849,545	\$44,963,331	\$28,900,560	\$32,297,420	\$54,446,044	\$7,971,064	13.1	55.6	\$ 10.5	\$40.7	583.0

¹Includes proprietors and firm members, with their salaries; number only reported in 1900 and 1905, but not included in this table.

²Not reported separately.

³Decrease.

⁴Not reported.

⁵At the census of 1870 the value of material operated upon was included in materials and products. At all subsequent censuses this value was eliminated and only the added value given by the dyeing and finishing processes was reported as value of products.

Table 3 is a comparative summary, by states, of the dyeing and finishing industry for the years 1890, 1900, and 1905.

The number of establishments has increased from 298 in 1900 to 360 in 1905. Of the net increase of 62 establishments, 58 are in Connecticut, Massachusetts, New York, Pennsylvania, and Rhode Island. A decrease of 2 in New Jersey makes a net increase of 56 in these 6 states where the cotton and wool industries are most concentrated.

In the item of capital this concentration is even more marked. The total increase was \$28,065,472—from \$60,643,104 in 1900 to \$88,708,576 in 1905, or 46.3 per cent. The increase in the 6 states along the coast from Massachusetts to Pennsylvania is shown in the following tabular statement:

Capital in selected states: 1905 and 1900.

STATE.	1905	1900	Increase.
Total for 6 states.....	\$82,928,442	\$56,814,325	\$26,114,117
Massachusetts.....	30,875,445	15,206,200	15,669,245
Rhode Island.....	16,969,936	12,853,123	4,116,813
Connecticut.....	4,562,055	3,243,744	1,318,311
New York.....	7,529,611	6,230,657	1,298,954
New Jersey.....	13,068,657	11,600,695	1,467,962
Pennsylvania.....	9,922,738	7,679,906	2,242,832

Ninety-three per cent of the total increase in capital was in the 6 states enumerated. Inasmuch as in 1900 they reported 93.7 per cent of the total capital, they have practically maintained to the full their ascendancy in this industry.

The number of wage-earners increased from 29,776 to 35,565, or 19.4 per cent, and the wages received by them increased from \$12,726,316 to \$15,469,205, or

21.6 per cent, a little higher rate than that of the number of employees. But as in similar cases, it would be unsafe to draw definite conclusions from this fact as to the general course of wages in the interval. The dyeing and finishing industry is peculiarly a man's trade. Almost exactly four-fifths of the persons employed were men, but the proportion both of women and children employed has increased slightly in the last few years. In New Jersey, where the number of hands was largest, more than seven-eighths of them were men and only 1.6 per cent were children. On the other hand, in Pennsylvania 8.7 per cent of those employed were under 16 years of age.

The cost of materials used in 1905, compared with 1900, shows an increase of but 9.3 per cent—the lowest rate of any of the principal items in Table 2. A tabular statement is presented below showing the cost of chemicals and dyestuffs used in all textile establishments (exclusive of shoddy and felt hat mills) and independent dyeing and finishing works in 1890, 1900, and 1905.

Cost of chemicals and dyestuffs used in all textile establishments: 1890 to 1905.

	1905	1900	1890
Total.....	\$26,682,619	\$25,392,573	\$19,686,663
Independent dyeing and finishing establishments.....	10,587,319	10,667,621	8,407,693
Other textile establishments.....	16,095,300	14,724,952	11,278,970
Cotton manufactures ¹	4,573,375	5,718,107	4,266,773
Wool manufactures ²	9,177,681	7,983,684	5,889,612
Hosiery and knit goods.....	1,677,252	1,023,161	564,053
Silk manufactures.....	666,992	(³)	558,532

¹Includes cotton goods and cotton small wares.

²Includes worsted goods; woolen goods; carpets and rugs, other than rag; felt goods; and wool hats.

³Not reported separately in 1900.

Rather more than one-half, in value, of all the materials reported consumed in 1905 by independent establishments consisted of chemicals and dyestuffs. Inasmuch as the value of such articles shows a positive decline since 1900, although the work done by these establishments, being of the same character and presumably divided as to the amount of each particular process in fairly similar proportions, has largely increased, it seems a reasonable inference that the average price of those materials decreased but that the quantities used increased.

The total value of products increased from \$44,963,-

331 in 1900 to \$50,849,545 in 1905, or 13.1 per cent. This item, as has been remarked, differs from the corresponding item in other industries in that it does not represent the gross value of the finished product, but only the added value given by the processes to which the material has been subjected. It is therefore permissible in this case to draw attention to the wide difference between the rate of expansion of capital, 46.3 per cent, and the rate of increase of the amount which the proprietors received for the operations performed on the goods, 13.1 per cent.

MANUFACTURES.

TABLE 3.—COMPARATIVE SUMMARY.

STATE.	Census.	Num- ber of estab- lish- ments.	CAPITAL.					SALARIED OFFI- CIALS, CLERKS, ETC.	
			Total.	Land.	Buildings.	Machinery, tools, and imple- ments.	Cash and sundries.	Num- ber.	Salaries.
1 United States	1905	360	\$88,708,576	\$7,587,005	\$16,698,086	\$24,013,987	\$40,409,498	2,196	\$3,407,381
2	1900	298	60,643,104	5,304,949	12,251,886	17,750,574	25,335,695	1,318	2,267,128
3	1890	248	38,450,800	2,579,114	7,596,641	9,703,284	18,571,761	666	805,291
4 Connecticut	1905	10	4,562,055	725,169	900,225	1,879,830	1,056,831	88	161,812
5	1900	5	3,243,744	482,100	1,004,388	929,262	827,994	39	100,884
6	1890	5	775,352	58,700	331,184	231,212	154,256	12	14,250
7 Illinois	1905	8	246,916	9,432	50,410	127,195	59,879	28	31,605
8	1900	4	113,694	7,500	42,000	50,800	13,394	7	6,700
9	1890	3	26,500	3,500	6,000	11,000	6,000	5	2,532
10 Kentucky ¹	1900	3	161,239	7,800	28,922	55,455	69,062	7	9,090
11 Massachusetts	1905	46	30,875,445	1,819,000	3,711,238	4,301,225	21,043,982	403	759,283
12	1900	37	15,206,200	1,161,503	1,960,972	2,499,388	9,584,357	239	547,862
13	1890	33	11,996,154	673,931	2,010,687	2,502,895	6,808,641	82	99,320
14 New Hampshire ²	1905	4	1,250,949	86,666	295,000	490,000	379,283	48	53,601
15	1900	5	883,704	61,000	153,000	173,500	496,204	21	23,900
16 New Jersey	1905	57	13,068,657	948,201	2,683,367	5,489,961	3,947,128	552	846,532
17	1900	59	11,600,695	651,481	2,100,396	4,624,059	4,224,759	353	614,910
18	1890	41	5,197,403	333,936	879,577	1,782,696	2,201,194	129	179,425
19 New York	1905	55	7,529,611	508,980	1,363,803	2,192,048	3,464,780	204	257,846
20	1900	42	6,230,657	339,909	1,335,748	2,097,541	2,457,459	107	134,345
21	1890	49	4,963,095	366,300	721,700	1,137,566	2,737,529	114	137,473
22 North Carolina ³	1905	4	828,766	113,448	156,645	316,820	241,853	27	28,150
23	1900	5	293,831	4,700	33,800	184,022	71,309	8	6,650
24 Pennsylvania	1905	123	9,922,738	869,836	2,024,948	2,605,156	4,422,798	324	445,052
25	1900	105	7,679,906	733,612	1,290,133	2,368,629	3,287,532	216	260,277
26	1890	83	6,296,340	598,647	1,354,200	1,839,121	2,504,372	190	207,257
27 Rhode Island	1905	37	16,969,936	2,183,079	4,680,587	5,176,985	4,929,285	403	672,315
28	1900	24	12,853,123	1,572,306	3,765,314	3,862,803	3,652,700	256	449,996
29	1890	22	5,739,692	432,600	1,832,398	1,498,323	1,976,371	101	130,059
30 All other states.....	⁴ 1905	16	3,453,503	323,194	831,863	1,434,767	863,679	119	151,185
31	⁵ 1900	9	2,376,311	283,038	537,213	905,115	650,945	65	112,514
32	⁶ 1890	12	3,456,264	111,500	460,895	700,471	2,183,398	33	34,975

¹Included in "all other states" in 1905. No establishments reported in 1890.²Included in "all other states" in 1890.³No establishments reported in 1890.⁴Includes establishments distributed as follows: Alabama, 1; California, 1; Delaware, 1; Indiana, 2; Iowa, 1; Kentucky, 2; Maine, 1; Maryland, 2; Ohio, 1; South Carolina, 2; Virginia, 1; West Virginia, 1.

DYEING AND FINISHING TEXTILES.

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BY STATES: 1890 TO 1905.

WAGE-EARNERS AND WAGES.					Miscellaneous expenses.	COST OF MATERIALS USED.							Value of products.	
Total.		Average number.				Total.	Chemicals and dye-stuffs.	Starch.	Soap.	Fuel.	Rent of power and heat.	All other materials, including mill supplies and freight.		
Average number.	Wages.	Men 16 years and over.	Women 16 years and over.	Children under 16 years.										
35,565	\$15,469,205	28,483	5,658	1,424	\$5,978,277	\$19,621,253	\$10,587,319	\$1,139,013	\$869,844	\$3,268,511	\$72,339	\$3,684,227	\$50,849,545	1
29,776	12,726,316	24,419	4,253	1,104	4,137,947	17,958,137	10,667,621	874,643	563,809	2,165,091	53,730	3,633,243	44,963,331	2
19,601	8,911,720	16,510	2,298	793	3,131,081	12,385,220	8,407,693	660,577	279,272	1,647,848	23,138	1,366,692	28,900,560	3
1,406	639,597	1,127	241	38	166,381	927,096	445,914	108,381	14,301	152,530	10,552	195,418	2,215,314	4
1,300	578,756	1,015	238	47	216,075	907,377	561,619	36,715	17,129	113,780	7,955	170,179	2,269,967	5
477	237,102	390	85	2	77,336	300,360	114,126	17,815	2,049	58,711	-----	107,639	715,388	6
123	44,575	81	42	-----	21,893	30,000	12,921	2,938	384	6,380	640	6,737	161,399	7
84	27,878	69	10	5	5,913	32,523	18,966	560	445	7,546	-----	5,006	86,960	8
16	7,892	13	11	-----	1,426	6,846	4,270	-----	504	1,072	-----	1,000	26,741	9
116	45,225	83	25	8	9,702	84,023	71,518	4,162	160	6,300	180	1,703	179,123	10
7,508	3,262,417	5,835	1,390	283	1,637,429	4,179,076	2,060,699	168,396	142,845	747,046	500	1,059,590	11,048,512	11
4,678	2,081,015	3,846	735	97	866,829	3,110,910	2,031,072	160,016	9,506	393,711	5,512	511,093	8,868,290	12
4,270	1,809,787	3,527	539	204	869,669	2,801,364	1,950,550	125,288	25,599	404,778	6,413	288,736	6,496,215	13
859	352,473	672	137	50	86,755	512,544	197,201	31,447	8,254	114,452	6,555	154,635	1,108,886	14
1,028	451,960	789	239	-----	111,478	636,469	309,296	23,646	25,034	74,451	50	203,992	1,325,319	15
7,597	3,465,830	6,664	814	119	1,213,308	5,052,184	3,110,185	186,789	423,560	592,287	7,873	731,490	11,979,947	16
7,074	3,003,491	6,120	786	168	809,580	4,513,768	2,755,553	165,728	224,298	411,178	9,497	947,514	10,488,963	17
3,735	1,878,137	3,335	346	54	752,461	2,711,121	2,068,192	109,466	83,775	239,329	2,500	207,859	6,183,397	18
3,586	1,577,976	2,724	803	59	378,390	1,339,430	518,515	66,699	63,109	287,640	15,710	387,757	4,361,688	19
3,117	1,424,578	2,395	636	86	216,395	1,402,373	689,825	63,124	46,131	202,074	8,564	392,655	3,625,882	20
2,725	1,344,250	2,174	415	136	367,935	1,454,119	889,577	73,836	44,321	216,618	4,775	224,992	3,636,051	21
301	83,034	236	64	1	28,346	85,548	26,936	21,317	-----	20,524	-----	16,771	250,805	22
184	45,340	142	42	-----	13,366	95,210	13,000	14,834	220	10,767	-----	56,389	175,750	23
4,585	2,075,904	3,728	456	401	757,494	2,701,027	1,791,646	39,292	128,016	424,961	11,802	305,310	6,786,263	24
4,716	2,065,752	4,013	346	357	556,083	3,174,507	2,068,174	94,373	172,970	342,671	8,772	487,547	7,038,012	25
3,355	1,596,565	2,964	212	179	419,456	2,395,482	1,808,041	107,269	80,793	284,546	6,250	108,583	5,240,761	26
7,562	3,181,597	5,742	1,465	355	1,213,979	3,639,268	1,872,209	346,557	73,861	758,330	5,350	582,961	9,981,457	27
5,942	2,474,042	4,644	1,039	259	1,138,065	3,087,781	1,653,059	205,321	62,048	513,837	20	653,496	8,484,878	28
3,619	1,462,996	2,904	570	145	393,549	1,319,351	1,064,475	129,050	32,205	351,521	1,200	240,900	4,743,561	29
2,038	785,802	1,674	246	118	474,302	1,155,080	551,093	167,197	15,514	164,361	13,357	243,558	2,955,274	30
1,537	528,279	1,303	157	77	200,461	913,196	495,539	106,164	5,868	88,776	13,180	203,669	2,417,187	31
1,404	574,991	1,203	128	73	249,249	896,577	508,462	97,853	10,026	91,273	2,000	186,963	1,588,426	32

*Includes establishments distributed as follows: Alabama, 1; Delaware, 2; Indiana, 1; Maine, 1; Maryland, 2; Ohio, 1; West Virginia, 1.

*Includes establishments distributed as follows: Delaware, 1; Iowa, 1; Maine, 1; Maryland, 2; Minnesota, 1; Missouri, 1; New Hampshire, 2; Ohio, 2; West Virginia, 1.

Table 4 shows in detail the quantity of various kinds of goods operated upon and the added value, as reported in 1890, 1900, and 1905.

TABLE 4.—KIND, QUANTITY, AND ADDED VALUE OF GOODS OPERATED UPON: 1890 TO 1905.

KIND AND PROCESS.	1905		1900		1890	
	Pounds.	Added value.	Pounds.	Added value.	Pounds.	Added value.
Aggregate value.....		\$50,849,545		\$44,963,331		\$28,900,560
Total.....	116,124,307	10,769,788	118,097,838	8,097,439	85,575,424	6,001,754
Cotton stock, bleached.....	386,512	9,805	300,650	4,823		
Cotton stock, dyed.....	9,520,932	376,278	12,466,700	572,661	4,676,344	204,827
Wool stock, dyed.....	2,510,007	130,088	2,408,511	83,071	1,160,666	48,828
Cotton yarn, bleached.....	11,708,132	296,312	12,780,518	252,635		
Cotton yarn, dyed.....	47,676,473	2,131,676	54,103,555	2,226,912	48,762,750	2,036,127
Cotton yarn, mercerized.....	2,419,615	181,989	868,851	159,616		
Woolen yarn, dyed.....	21,851,852	688,192	20,755,984	557,001	17,999,651	751,801
Worsted yarn, dyed.....	9,914,641	470,177	8,474,562	491,291	9,342,157	493,974
Silk yarn, dyed.....	9,380,358	6,335,029	5,609,444	3,615,644	3,322,017	2,346,387
Spun silk yarn, dyed.....	755,785	150,242	329,063	133,785	311,830	119,810
Total.....	<i>Square yards.</i> 2,497,197,356	33,694,375	<i>Square yards.</i> 2,511,485,729	34,599,542	<i>Square yards.</i> 1,569,422,631	22,514,000
Cotton piece goods, bleached.....	988,081,883	7,588,642	964,902,367	6,691,423	454,357,758	3,369,940
Cotton piece goods, dyed.....	623,415,398	9,097,585	559,480,339	7,585,204	446,496,822	5,671,488
Cotton piece goods, mercerized.....	39,959,448	975,031	7,973,506	400,118		
Cotton piece goods, printed.....	791,068,157	10,440,066	940,450,338	15,997,087	579,667,368	10,355,032
Woolen piece goods, dyed.....	3,640,530	176,889	11,243,394	451,864		
Worsted piece goods, dyed.....	13,447,092	772,119	9,413,337	476,951	20,779,034	652,998
Silk piece goods, dyed.....	32,861,330	990,991	14,340,796	481,463	7,405,399	394,777
Silk piece goods, printed.....	4,723,518	360,333	3,681,652	335,154		
Mixed goods.....	(¹)	3,292,719	(¹)	2,180,278	60,716,250	2,069,765
All other work done.....	(¹)	6,385,382	(¹)	2,266,350	(¹)	384,806

¹Quantity not reported.

As has been explained, these statistics are to be taken in connection with those previously given for other textile mills, but they are still defective, in that the great amount of dyeing in mills engaged in the wool industry is not reported at all.

Table 5 presents a detailed summary, by states, of the dyeing and finishing industry as conducted in independent plants as reported at the census of 1905.

TABLE 5.—DYEING AND FINISHING TEXTILES—DETAILED SUMMARY, BY STATES: 1905.

	United States.	Connecticut.	Illinois.	Massachusetts.	New Hampshire.	New Jersey.	New York.	North Carolina.	Pennsylvania.	Rhode Island.	All other states. ¹
Number of establishments.....	360	10	8	46	4	57	55	7	123	37	16
Capital, total.....	\$88,708,576	\$4,562,055	\$246,916	\$30,875,445	\$1,250,949	\$13,068,657	\$7,529,611	\$828,766	\$9,922,738	\$16,969,936	\$3,453,503
Land.....	\$7,587,005	\$725,169	\$9,432	\$1,819,000	\$86,666	\$948,201	\$508,980	\$113,448	\$869,836	\$2,183,079	\$323,194
Buildings.....	\$16,698,086	\$900,225	\$50,410	\$3,711,238	\$295,000	\$2,683,367	\$1,363,803	\$156,645	\$2,024,948	\$4,680,587	\$831,863
Machinery, tools, and implements.....	\$24,013,987	\$1,879,830	\$127,195	\$4,301,225	\$490,000	\$5,489,961	\$2,192,048	\$316,820	\$2,605,156	\$5,176,985	\$1,434,767
Cash and sundries.....	\$40,409,498	\$1,056,831	\$59,879	\$21,043,982	\$379,283	\$3,947,128	\$3,464,780	\$241,853	\$4,422,798	\$4,929,285	\$863,679
Proprietors and firm members.....	310	2	2	24	1	31	60	2	161	19	8
Salaried officials, clerks, etc.:.....											
Total number.....	2,196	88	28	403	48	552	204	27	324	403	119
Total salaries.....	\$3,407,381	\$161,812	\$31,605	\$759,283	\$53,601	\$846,532	\$257,846	\$28,150	\$445,052	\$672,315	\$151,185
Officers of corporations—											
Number.....	240	20	7	43	1	70	13	11	27	36	17
Salaries.....	\$1,031,193	\$62,611	\$12,000	\$235,787	\$6,666	\$312,115	\$32,420	\$9,575	\$106,050	\$173,183	\$80,786
General superintendents, managers, clerks, etc.—											
Total number.....	1,956	68	21	360	47	482	191	21	297	367	102
Total salaries.....	\$2,376,188	\$99,201	\$19,605	\$523,496	\$46,935	\$534,417	\$225,426	\$18,575	\$339,002	\$499,132	\$70,399
Men—											
Number.....	1,735	59	14	328	30	441	175	18	264	323	83
Salaries.....	\$2,273,932	\$95,136	\$15,265	\$509,094	\$41,549	\$515,421	\$217,782	\$16,710	\$323,208	\$477,009	\$62,758
Women—											
Number.....	221	9	7	32	17	41	16	3	33	44	19
Salaries.....	\$102,256	\$4,065	\$4,340	\$14,402	\$5,386	\$18,996	\$7,644	\$1,865	\$15,794	\$22,123	\$7,641
Wage-earners, including piece-workers, and total wages:											
Greatest number employed at any one time during the year.....	39,964	1,573	156	8,347	992	8,866	4,002	314	5,291	8,304	2,119
Least number employed at any one time during the year.....	30,796	1,259	98	6,335	780	6,221	3,223	248	3,794	6,926	1,912
Average number.....	35,565	1,406	123	7,508	859	7,597	3,586	301	4,585	7,562	2,038
Total wages.....	\$15,469,205	\$639,597	\$44,575	\$3,262,417	\$352,473	\$3,465,830	\$1,577,976	\$83,034	\$2,075,904	\$3,181,597	\$785,802
Men 16 years and over—											
Average number.....	28,483	1,127	81	5,835	672	6,664	2,724	236	3,728	5,742	1,674
Wages.....	\$13,543,724	\$566,962	\$32,503	\$2,753,581	\$302,507	\$3,230,145	\$1,348,995	\$69,344	\$1,879,338	\$2,649,512	\$710,837
Women 16 years and over—											
Average number.....	5,658	241	42	1,390	137	814	803	64	456	1,465	246
Wages.....	\$1,640,093	\$65,909	\$12,072	\$440,568	\$39,966	\$212,563	\$219,593	\$13,509	\$122,497	\$451,005	\$61,811
Children under 16 years—											
Average number.....	1,424	38	283	50	119	59	59	1	401	355	118
Wages.....	\$285,388	\$6,726	\$68,268	\$10,000	\$23,122	\$9,388	\$811	\$74,069	\$80,480	\$13,154	

¹Includes establishments distributed as follows: Alabama, 1; California, 1; Delaware, 1; Indiana, 2; Iowa, 1; Kentucky, 2; Maine, 1; Maryland, 2; Ohio, 1; South Carolina, 2; Virginia, 1; West Virginia, 1.

DYEING AND FINISHING TEXTILES.

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TABLE 5.—DYEING AND FINISHING TEXTILES—DETAILED SUMMARY, BY STATES: 1905—Continued.

	United States.	Connecticut.	Illinois.	Massachusetts.	New Hampshire.	New Jersey.	New York.	North Carolina.	Pennsylvania.	Rhode Island.	All other states.
Average number of wage-earners, including pieceworkers, employed during each month:											
Men 16 years and over—											
January.....	28,963	1,195	86	6,074	667	6,514	2,776	236	3,715	5,979	1,721
February.....	29,034	1,158	87	5,998	624	6,746	2,772	236	3,771	5,952	1,690
March.....	29,294	1,151	86	6,093	646	6,839	2,771	235	3,805	5,936	1,732
April.....	28,738	1,112	74	5,973	636	6,804	2,749	235	3,616	5,865	1,674
May.....	28,181	1,080	74	5,782	685	6,642	2,683	235	3,582	5,759	1,659
June.....	27,476	1,089	74	5,727	682	6,111	2,615	235	3,694	5,615	1,634
July.....	27,169	1,077	70	5,592	673	6,044	2,548	206	3,690	5,635	1,634
August.....	27,150	1,061	84	5,364	691	6,310	2,688	242	3,563	5,518	1,629
September.....	27,833	1,095	86	5,679	686	6,659	2,737	242	3,594	5,406	1,649
October.....	28,960	1,141	85	5,897	702	7,040	2,780	243	3,829	5,578	1,665
November.....	29,272	1,167	86	5,754	744	7,163	2,782	243	3,850	5,808	1,675
December.....	29,726	1,198	80	6,087	628	7,096	2,787	244	4,027	5,853	1,726
Women 16 years and over—											
January.....	5,818	245	45	1,396	120	835	845	65	473	1,547	247
February.....	5,903	251	45	1,451	121	844	855	65	489	1,539	243
March.....	5,895	250	45	1,453	120	875	842	66	468	1,524	252
April.....	5,783	246	45	1,426	120	861	819	66	459	1,496	245
May.....	5,596	229	45	1,409	139	819	760	66	433	1,457	239
June.....	5,422	237	45	1,362	141	741	744	66	433	1,413	240
July.....	5,256	221	39	1,302	144	727	702	44	445	1,406	226
August.....	5,238	222	39	1,242	138	780	722	66	430	1,374	225
September.....	5,467	227	39	1,377	154	767	789	66	428	1,369	251
October.....	5,788	230	39	1,422	165	860	832	66	486	1,424	255
November.....	5,848	258	39	1,375	165	868	855	66	453	1,507	262
December.....	5,882	267	39	1,465	117	791	871	66	475	1,524	267
Children under 16 years—											
January.....	1,461	43	.....	282	50	110	67	1	404	384	120
February.....	1,445	44	.....	274	50	111	64	1	421	363	117
March.....	1,446	46	.....	278	50	110	57	1	421	367	116
April.....	1,399	42	.....	271	50	121	53	1	394	353	114
May.....	1,360	36	.....	275	50	122	52	1	361	343	120
June.....	1,393	36	.....	280	50	124	56	1	400	333	113
July.....	1,418	29	.....	291	50	124	59	1	413	335	116
August.....	1,405	29	.....	287	50	128	61	1	382	350	117
September.....	1,410	32	.....	283	50	119	62	1	392	349	122
October.....	1,439	35	.....	287	50	125	61	1	403	353	124
November.....	1,448	42	.....	286	50	117	61	1	402	366	123
December.....	1,444	42	.....	302	50	117	55	1	419	364	114
Miscellaneous expenses, total.....	\$5,978,277	\$166,381	\$21,893	\$1,637,429	\$86,755	\$1,213,308	\$378,390	\$28,346	\$757,494	\$1,213,979	\$474,302
Rent of works.....	\$410,513	\$100	\$7,690	\$18,819	\$600	\$195,802	\$52,949	\$750	\$59,603	\$73,900	\$300
Taxes.....	\$402,390	\$28,401	\$369	\$148,302	\$14,550	\$39,230	\$44,315	\$2,677	\$32,702	\$69,442	\$22,402
Rent of offices, interest, insurance, and all other sundry expenses not hitherto included.....	\$5,072,489	\$137,880	\$10,570	\$1,443,386	\$71,605	\$969,746	\$255,223	\$24,919	\$662,201	\$1,065,459	\$431,500
Contract work.....	\$92,885	.....	\$3,264	\$26,922	.....	\$8,530	\$25,903	.....	\$2,988	\$5,178	\$20,100
Materials used, total cost.....	\$19,621,253	\$927,096	\$30,000	\$4,179,076	\$512,544	\$5,052,184	\$1,339,430	\$85,548	\$2,701,027	\$3,639,268	\$1,155,080
Chemicals and dyestuffs, cost.....	\$10,587,319	\$445,914	\$12,921	\$2,060,699	\$197,201	\$3,110,185	\$518,515	\$26,936	\$1,791,646	\$1,872,209	\$551,093
Starch—											
Pounds.....	43,587,513	3,912,020	168,965	7,107,308	1,238,655	5,835,894	3,216,825	1,038,059	1,429,602	13,717,288	5,922,897
Cost.....	\$1,139,013	\$108,381	\$2,938	\$168,396	\$31,447	\$186,789	\$66,699	\$21,317	\$39,292	\$346,557	\$167,197
Silk soap—											
Pounds.....	11,336,779	.....	6,300	1,536,683	.....	7,936,421	427,500	.....	1,235,334	72,005	122,536
Cost.....	\$568,075	.....	\$349	\$92,201	.....	\$384,038	\$21,608	.....	\$60,453	\$3,600	\$5,826
Other soap—											
Pounds.....	8,407,745	372,926	1,400	2,106,025	391,884	926,373	904,964	.....	1,539,883	1,945,608	218,682
Cost.....	\$301,769	\$14,301	\$35	\$50,644	\$8,254	\$39,522	\$41,501	.....	\$67,563	\$70,261	\$9,688
Fuel.....	\$3,268,511	\$152,530	\$6,380	\$747,046	\$114,452	\$592,287	\$287,640	\$20,524	\$424,961	\$758,330	\$104,361
Rent of power and heat.....	\$72,339	\$10,552	\$640	\$500	\$6,555	\$7,873	\$15,710	.....	\$11,802	\$5,350	\$13,357
Mill supplies.....	\$662,475	\$8,875	\$2,401	\$302,317	\$11,351	\$84,983	\$19,964	\$13,965	\$72,227	\$128,127	\$18,265
All other materials.....	\$2,492,252	\$144,154	\$2,313	\$624,931	\$143,084	\$401,722	\$342,145	\$948	\$204,278	\$409,259	\$219,418
Freight.....	\$529,500	\$42,389	\$2,023	\$132,342	\$200	\$244,785	\$25,648	\$1,858	\$28,035	\$45,575	\$5,875
Products, total value.....	\$50,849,545	\$2,215,314	\$161,399	\$11,048,512	\$1,108,886	\$11,979,947	\$4,361,688	\$250,805	\$6,786,263	\$9,981,457	\$2,955,274
Wool, dyed—											
Pounds.....	2,510,007	.....	.....	90,000	.....	310,408	169,696	.....	1,771,944	129,100	38,859
Value.....	\$130,088	.....	.....	\$6,300	.....	\$20,044	\$6,369	.....	\$85,264	\$13,168	\$1,943
Yarn, dyed—											
Woolen—											
Pounds.....	21,851,852	.....	5,000	2,500	.....	301,000	718,250	.....	20,814,802	5,800	4,500
Value.....	\$688,192	.....	\$500	\$500	.....	\$15,050	\$28,730	.....	\$642,590	\$522	\$300
Worsted—											
Pounds.....	9,914,641	.....	.....	1,255,000	.....	906,000	36,000	.....	7,690,741	22,500	4,400
Value.....	\$470,177	.....	.....	\$94,125	.....	\$45,300	\$3,600	.....	\$323,357	\$2,475	\$1,320
Piece goods, dyed—											
Woolen—											
Square yards.....	3,640,530	.....	.....	.....	.....	1,295,530	125,000	.....	2,200,000	.....	20,000
Value.....	\$176,889	.....	.....	.....	.....	\$67,339	\$3,750	.....	\$104,400	.....	\$1,400
Worsted—											
Square yards.....	13,447,092	.....	.....	1,200,000	.....	.....	.....	.....	9,240,400	6,000	3,000,692
Value.....	\$772,119	.....	.....	\$54,000	.....	.....	.....	.....	\$500,344	\$600	\$217,175
Cotton stock—											
Bleached—											
Pounds.....	386,512	.....	7,500	.....	.....	25,807	100,205	.....	53,000	200,000	.....
Value.....	\$9,805	.....	\$225	.....	.....	\$2,064	\$3,256	.....	\$1,060	\$3,200	.....
Dyed—											
Pounds.....	9,520,932	.....	33,000	3,622,261	(1)	482,078	812,296	(1)	3,027,808	1,001,500	\$541,997
Value.....	\$376,278	.....	\$1,650	\$142,024	(1)	\$27,313	\$20,383	(1)	\$101,800	\$68,647	\$14,453
Cotton yarn—											
Bleached—											
Pounds.....	11,708,132	2,807	.....	3,229,879	(1)	12,000	187,439	.....	4,265,352	3,854,655	\$156,000
Value.....	\$296,312	\$56	.....	\$77,215	(1)	\$600	\$10,384	.....	\$106,767	\$96,610	\$4,680
Dyed—											
Pounds.....	47,676,473	429,455	169,980	5,846,721	.....	500	1,076,184	.....	29,989,791	8,806,368	1,357,474
Value.....	\$2,131,676	\$32,152	\$8,499	\$363,340	.....	\$25	\$45,982	.....	\$1,068,805	\$567,046	\$45,827
Mercerized—											
Pounds.....	2,419,615	46,870	70,000	45,718	.....	.....	142,527	(1)	906,437	1,200,727	\$7,336
Value.....	\$181,989	\$3,281	\$8,400	\$3,855	.....	.....	\$10,523	(1)	\$88,040	\$67,000	\$890

¹ Included in "all other states."

² Includes products for New Hampshire and North Carolina.

TABLE 5.—DYEING AND FINISHING TEXTILES—DETAILED SUMMARY, BY STATES: 1965—Continued.

	United States.	Connecticut.	Illinois.	Massachusetts.	New Hampshire.	New Jersey.	New York.	North Carolina.	Pennsylvania.	Rhode Island.	All other states.
Products—Continued.											
Cotton piece goods—											
Bleached—											
Square yards.....	988,081,883	2,522,200	7,808,172	209,845,513	(1)	123,788,500	66,293,842	(1)	7,961,304	407,556,433	² 162,305,919
Value.....	\$7,588,642	\$18,664	\$29,781	\$1,737,885	(1)	\$961,989	\$43,961	(1)	\$150,448	\$3,035,013	² \$1,220,901
Dyed—											
Square yards.....	623,415,398	71,051,466	900,072	211,519,248	(1)	94,220,747	32,177,708		15,658,305	124,391,737	² 73,496,115
Value.....	\$9,097,585	\$1,032,825	\$5,250	\$2,221,540	(1)	\$1,421,174	\$300,792		\$246,871	\$2,443,716	² \$1,425,417
Mercerized—											
Square yards.....	39,959,448	10,112,500		1,880,193	(1)	1,955,985	438,856		2,966	22,247,150	² 3,321,798
Value.....	\$975,031	\$324,287		\$62,017	(1)	\$48,089	\$11,485		\$53	\$337,769	² \$191,331
Printed—											
Square yards.....	791,068,157	36,208,345		334,837,960	(1)	114,555,775	79,793,075		17,894,459	156,257,377	² 51,521,166
Value.....	\$10,440,066	\$648,995		\$3,748,607	(1)	\$1,449,536	\$1,129,715		\$452,948	\$2,183,479	² \$826,786
Silk, dyed—											
Pounds.....	9,380,358	6,000	2,800			7,118,879	690,700		1,488,695		73,284
Value.....	\$6,335,029	\$1,500	\$1,120			\$5,032,438	\$220,600		\$1,011,666		\$67,705
Spun silk, dyed—											
Pounds.....	755,785			4,000		315,800	225,755		210,230		
Value.....	\$150,242			\$2,000		\$58,703	\$52,198		\$37,338		
Silk piece goods—											
Dyed—											
Square yards.....	32,861,330					28,429,125	993,000		2,956,282	182,912	300,000
Value.....	\$990,991					\$903,504	\$48,900		\$24,655	\$5,932	\$8,000
Printed—											
Square yards.....	4,723,518					4,262,834	460,684				
Value.....	\$360,333					\$335,699	\$24,634				
Mixed goods.....	\$3,292,719		\$600	\$700,737	(1)	\$1,413,400	\$236,190		\$68,177	\$836,095	² \$37,520
All other work done.....	\$6,385,382	\$153,554	\$105,374	\$1,834,367		\$177,677	\$1,770,236	(1)	\$1,771,672	\$323,185	² \$249,317
Machinery:											
Printing machines—											
Total number.....	431	22		136	14	73	61		30	64	31
On cotton, number.....	416	21		136	14	62	58		30	64	31
On silk, number.....	15	1				11	3				
Power:											
Number of establishments reporting.....	328	9	7	46	3	46	47	4	114	36	16
Total horsepower.....	95,505	5,617	532	20,304	3,745	14,426	7,212	705	10,288	23,894	8,782
Owned—											
Engines—											
Steam—											
Number.....	1,533	55	8	267	2	321	206	5	308	208	53
Horsepower.....	70,385	1,981	512	17,736	700	12,384	6,436	705	9,174	15,781	4,976
Gas and gasoline—											
Number.....	10			1			5		1	2	1
Horsepower.....	711			12			49		30	470	150
Water wheels—											
Number.....	71	13		15	3	5	5			16	14
Horsepower.....	10,125	2,515		1,330	950	385	400			2,285	2,260
Water motors—											
Number.....	7					7					
Horsepower.....	5					5					
Electric motors—											
Number.....	446	36		63	13	71	6		40	177	40
Horsepower.....	10,637	734		1,062	830	1,591	84		576	5,189	571
Other power, horsepower.....	170								170		
Rented—											
Electric motors—											
Number.....	42		2		8	4	9		2	16	1
Horsepower.....	1,087		10		730	27	97		45	153	25
Other kind, horsepower.....	2,385	387	10	164	535	34	146		293	16	800
Furnished to other establishments, horsepower.....	328			113			70		95	50	

¹Included in "all other states."²Includes products for New Hampshire and North Carolina.

BUTTONS

BUTTONS.

The statistics of this report include the returns for establishments engaged chiefly in the manufacture of buttons or button blanks. The census of 1905 covered the calendar year 1904, while the census of 1900 covered the fiscal year ending May 31, 1900.

Table 1 is a comparative summary, giving the statistics of the industry from 1850 to 1905, with the per cent of increase at each census.

There was a decided growth in the industry for each intercensal period since 1860, except the decade from 1880 to 1890. During this decade the capital invested increased, although every other item shown decreased. Between 1850 and 1860 there was a decrease in the number of establishments. Considered from the point of view of the ratio of increase in the value of products, the growth was most marked for the decade from 1870 to 1880.

At the census of 1905 the capital invested had increased \$3,571,332, or 84.8 per cent, over 1900; the cost of materials used, \$1,341,200, or 47.8 per cent; and the value of the product, \$3,437,859, or 157.1 per cent. The average number of wage-earners increased 1,882, or 21.7 per cent, and the wages, \$853,958, or

30.2 per cent. The number of men employed increased 1,102, or 27 per cent, and their wages, \$616,462, or 35.2 per cent; while the number of women increased 893, or 21.6 per cent, and their wages, \$258,518, or 25.9 per cent. The employment of children is on the decline, the number reported being 468 in 1900 and only 355 for 1905, a decrease of 113, or 24.1 per cent. From 1900 to 1905 there was an increase of \$618,900, or 157.1 per cent, in miscellaneous expenses.

The amount of \$11,133,769, reported as the value of the products of the button industry for 1905, represents only the value of those products manufactured in button factories. Many manufacturers produce buttons as a partial or secondary product. The figures reported for such products were tabulated and show \$1,034,843 as the value. Doubtless buttons were manufactured as a partial product in many other plants in which it was impossible to separate the value of this item from that of the other articles manufactured. For the census of 1900 the reports showed that buttons, valued at \$42,790, were manufactured in other than button factories.

TABLE 1. COMPARATIVE SUMMARY, WITH PER CENT OF INCREASE: 1850 TO 1905.

	CENSUS.							PER CENT OF INCREASE.					
	1905 ¹	1900 ²	1890	1880	1870	1860	1850	1900 to 1905	1890 to 1900	1880 to 1890	1870 to 1880	1860 to 1870	1850 to 1860
Number of establishments.....	275	238	106	124	64	43	59	15.6	124.6	³ 14.5	93.8	48.8	³ 2.1
Capital.....	\$7,783,900	\$4,212,568	\$3,089,265	\$2,013,350	\$1,013,700	\$558,550	\$393,000	84.8	36.4	53.4	98.6	81.5	42.1
Salaried officials, clerks, etc., number.....	768	339	⁴ 205	(⁵)	(⁵)	(⁵)	(⁵)	126.5	65.4				
Salaries.....	\$711,473	\$296,358	⁴ \$262,787	(⁵)	(⁵)	(⁵)	(⁵)	140.1	12.8				
Wage-earners, average number.....	10,567	8,685	3,831	5,825	1,912	1,161	1,088	21.7	126.7	³ 24.2	204.7	64.7	6.7
Total wages.....	\$3,680,196	\$2,826,238	\$1,411,089	\$1,645,130	\$580,380	\$260,206	\$225,120	30.2	100.3	³ 14.2	183.5	123.0	15.6
Men 16 years and over.....	5,188	4,086	1,544	2,128	617	487	467	27.0	164.6	³ 27.4	244.9	26.7	4.3
Wages.....	\$2,369,595	\$1,753,133	\$805,782	(⁵)	(⁵)	(⁵)	(⁵)	35.2	117.6				
Women 16 years and over.....	5,024	4,131	2,176	3,052	949	674	621	21.6	89.8	³ 28.7	221.6	40.8	8.5
Wages.....	\$1,296,373	\$997,857	\$588,901	(⁵)	(⁵)	(⁵)	(⁵)	25.9	69.4				
Children under 16 years.....	355	468	111	645	346	(⁵)	(⁵)	³ 24.1	321.6	³ 82.8	86.4		
Wages.....	\$54,226	\$75,248	\$16,406	(⁵)	(⁵)	(⁵)	(⁵)	³ 27.9	358.7				
Miscellaneous expenses.....	\$1,012,762	\$393,862	\$256,846	(⁵)	(⁵)	(⁵)	(⁵)	157.1	53.3				
Cost of materials used.....	\$4,144,446	\$2,803,246	\$1,551,603	\$1,792,891	\$751,183	\$358,385	\$324,837	47.8	80.7	³ 13.5	138.7	109.6	10.3
Value of products.....	\$11,133,769	\$7,095,910	\$4,216,795	\$4,449,542	\$1,778,893	\$949,408	\$964,359	44.7	82.5	³ 5.2	150.1	87.4	⁴ 1.6

¹ Exclusive of the statistics of 13 establishments engaged primarily in the manufacture of other products. These establishments manufactured buttons to the value of \$1,034,843.

² Exclusive of the statistics of 2 establishments engaged primarily in the manufacture of other products. These establishments manufactured buttons to the value of \$42,790.

³ Decrease.

⁴ Includes proprietors and firm members, with their salaries; number only reported in 1900 and 1905, but not included in this table.

⁵ Not reported separately.

⁶ Not reported.

The industry by states.—Table 2 shows, by states, the number of establishments actively engaged in the manufacture of buttons and button blanks, for each census from 1890 to 1905.

TABLE 2. —Number of active establishments, with increase, by states: 1890 to 1905.

STATE.	NUMBER OF ESTABLISHMENTS.			INCREASE.	
	1905	1900	1890	1900 to 1905	1890 to 1900
United States.....	275	238	106	37	132
Arkansas.....	3	1	.....	2	1
California.....	2	5	.....	13	5
Connecticut.....	11	11	14	.....	13
District of Columbia.....	.....	.....	1	.....	11
Illinois.....	22	14	4	8	10
Indiana.....	4	.....	.....	4	.....
Iowa.....	51	53	.....	12	53
Kentucky.....	1	1	1	.....	.....
Maine.....	1	.....	.....	1	.....
Maryland.....	1	2	1	11	1
Massachusetts.....	12	13	16	11	13
Michigan.....	1	2	.....	11	2
Minnesota.....	1	2	.....	11	2
Mississippi.....	1	.....	.....	1	.....
Missouri.....	10	11	.....	11	11
Nebraska.....	1	2	.....	11	2
New Hampshire.....	1	1	.....	.....	1
New Jersey.....	46	34	17	12	17
New York.....	61	49	34	12	15
Ohio.....	4	4	.....	.....	4
Pennsylvania.....	21	21	14	.....	7
Rhode Island.....	.....	3	4	13	11
Tennessee.....	1	.....	.....	1	.....
Utah.....	1	.....	.....	1	.....
Wisconsin.....	18	9	.....	9	9

¹ Decrease.

One or more plants were installed in each of the following 5 states for which no establishments were reported in 1900: Indiana, 4; Maine, 1; Mississippi, 1; Tennessee, 1; and Utah, 1. These establishments were of small importance to the industry so far as value of products is concerned, for although they produced several classes of buttons—wooden, pearl, and celluloid—and pearl blanks, etc., the value of the product was only \$131,979, which is but a small percentage of the total for the United States.

Table 3 is a comparative summary of the general statistics of the industry, by states, as reported at the censuses of 1900 and 1905.

While the industry shows great development, the value of products decreased in Ohio and Pennsylvania. In value of production New York was first at the census of 1905, with \$3,849,317, or an increase of 62.3 per cent; New Jersey, second, with \$1,592,261, or an increase of 55.3 per cent; Iowa, third, with \$1,500,945, or an increase of 73.2 per cent; and Connecticut, fourth, with \$1,446,219, or an increase of 33 per cent.

TABLE 3.—COMPARATIVE SUMMARY, BY STATES: 1905 AND 1900.

STATE.	Census.	Number of establishments.	Capital.	SALARIED OFFICIALS, CLERKS, ETC.		WAGE-EARNERS AND WAGES.		Miscellaneous expenses.	Cost of materials used.	Value of products.
				Num-ber.	Salaries.	Average number.	Wages.			
United States.....	1905 1900	275 238	\$7,783,900 4,212,568	768 339	\$711,473 296,358	10,567 8,685	\$3,680,196 2,826,238	\$1,012,762 393,862	\$4,144,446 2,803,246	\$11,133,769 7,695,910
California ¹	1900	5	6,487	1	1,200	6	988	1,277	2,795	8,870
Connecticut.....	1905 1900	11 11	1,308,408 532,178	69 24	95,001 30,812	1,044 800	410,326 305,687	171,894 117,643	598,733 430,187	1,446,219 1,087,235
Illinois.....	1905 1900	22 14	164,478 53,493	20 14	10,510 7,629	280 272	102,295 101,039	23,526 11,329	71,347 66,213	251,371 242,444
Indiana ²	1905	4	68,801	4	3,460	140	40,031	4,351	14,331	70,268
Iowa.....	1905 1900	51 53	1,173,866 324,315	116 42	74,685 26,306	1,936 1,402	653,520 458,086	92,530 37,252	533,917 196,842	1,500,945 866,538
Massachusetts.....	1905 1900	12 13	740,114 626,439	30 19	54,319 31,164	816 772	317,988 276,202	58,606 27,505	225,655 237,835	803,636 681,081
Missouri.....	1905 1900	10 11	138,568 39,495	16 4	5,671 1,236	200 83	59,114 23,881	10,028 10,788	37,120 26,679	153,294 85,449
New Jersey.....	1905 1900	46 34	841,635 509,681	82 53	93,382 50,299	1,369 1,169	550,013 410,056	105,175 37,879	634,477 398,616	1,592,261 1,025,544
New York.....	1905 1900	61 49	2,033,649 1,195,343	333 105	284,030 83,195	3,237 2,647	1,067,677 812,978	400,844 110,717	1,488,421 943,432	3,849,317 2,371,196
Ohio.....	1905 1900	4 4	59,608 49,645	6 7	3,234 4,786	73 72	17,474 18,268	4,298 5,701	24,021 20,946	54,216 58,873
Pennsylvania.....	1905 1900	21 21	718,757 557,488	58 42	53,998 39,152	1,009 1,140	304,929 321,473	91,037 17,683	360,106 403,106	899,824 999,355
Rhode Island ³	1900	3	29,116	4	2,464	28	8,501	4,393	9,040	33,589
Wisconsin.....	1905 1900	18 9	116,240 34,499	11 4	5,420 1,425	189 106	59,300 32,108	10,535 1,830	58,674 18,751	165,629 63,125
All other states.....	⁴ 1905 ⁵ 1900	15 11	419,776 254,389	23 20	27,758 16,690	274 188	97,529 56,971	39,038 9,865	97,644 48,804	346,789 172,611

¹ Included in "all other states" in 1905.² No establishments reported in 1900.³ No establishments reported in 1905.⁴ Includes establishments distributed as follows: Arkansas, 3; California, 2; Kentucky, 1; Maine, 1; Maryland, 1; Michigan, 1; Minnesota, 1; Mississippi, 1; Nebraska, 1; New Hampshire, 1; Tennessee, 1; Utah, 1.⁵ Includes establishments distributed as follows: Arkansas, 1; Kentucky, 1; Maryland, 2; Michigan, 2; Minnesota, 2; Nebraska, 2; New Hampshire, 1.

Capital.—Table 4 shows the distribution of capital at the censuses of 1890, 1900, and 1905, and the per cent each item is of total.

TABLE 4.—*Capital, with per cent each item is of total: 1890 to 1905.*

	1905		1900		1890	
	Amount.	Per cent of total.	Amount.	Per cent of total.	Amount.	Per cent of total.
Total.....	\$7,783,900	100.0	\$4,212,568	100.0	\$3,089,265	100.0
Land.....	308,896	4.0	145,260	3.4	98,664	3.2
Buildings.....	838,311	10.8	433,268	10.3	208,185	6.7
Machinery, tools, and implements.....	2,128,823	27.3	1,310,442	31.1	956,094	31.0
Cash and sundries....	4,507,870	57.9	2,323,598	55.2	1,826,322	59.1

There was a large increase for each kind of capital from 1900 to 1905, that invested in land leading with 112.6 per cent. The percentage of increase for total capital was 84.8. There was but little difference in the proportions of the kinds at the three census years.

Materials used.—Table 5 is a summary of the cost of materials used in 1900 and for 1905, showing the per cent of increase for each item, and the per cent which each item forms of the total.

TABLE 5.—*Cost of materials used, with per cent of total and per cent of increase: 1905 and 1900.*

KIND.	1905		1900		Per cent of increase.
	Amount.	Per cent of total.	Amount.	Per cent of total.	
Total.....	\$4,144,446	100.0	\$2,803,246	100.0	47.8
Purchased in raw state.....	1,551,423	37.4	1,232,938	44.0	25.8
Purchased in partially manufactured form.....	2,396,346	57.8	1,437,982	51.3	66.6
Fuel.....	94,978	2.3	46,665	1.6	103.5
Rent of power and heat.....	40,688	1.0	33,375	1.2	21.9
Freight.....	61,011	1.5	52,286	1.9	16.7

The above figures show that there was some difference in the distribution of the total cost of materials for 1905 and 1900, materials purchased in a raw state constituting a smaller proportion and those purchased in a partially manufactured form, a larger proportion of the total for 1905 than for 1900. The other items form a very small proportion of the total cost, and consequently are of little relative statistical value.

The percentages of increase for the quinquennial period show clearly a disproportionate increase in the cost of the different materials used, the variation being from 16.7 per cent for freight to 103.5 per cent for fuel. The difference between the rates of increase for materials purchased in the raw state and those purchased in the partially manufactured form is particularly noteworthy, being 40.8 per cent in favor of the latter.

Miscellaneous expenses.—Table 6 gives in detail the miscellaneous expenses for 1905.

TABLE 6.—*Miscellaneous expenses, with per cent each item is of total: 1905.*

	1905	Per cent of total.
Total.....	\$1,012,762	100.0
Rent of works.....	124,103	12.3
Taxes.....	25,784	2.5
Rent of offices, interest, insurance, and all other sundry expenses.....	832,237	82.2
Contract work.....	30,638	3.0

The largest item of expense was \$832,237, which includes the cost of repairs to machinery, rent of offices, interest, insurance, and advertising. The greatest part of this total was paid for advertising.

Products.—Table 7 gives the kind, quantity, and value of the products manufactured at the census of 1905.

TABLE 7.—*Products, by kind, quantity, and value, with per cent of total value: 1905.*

KIND.	Quantity (gross).	Value.	Per cent of total value.
Aggregate.....		\$11,133,769	100.0
Buttons, total.....	129,859,292	19,040,029	81.2
Pearl, total.....	13,143,553	4,870,274	25.9
Fresh water.....	11,405,723	3,359,167	69.0
Ocean.....	1,737,830	1,511,107	31.0
Metal.....	6,815,962	1,312,741	14.5
Vegetable ivory.....	2,470,409	1,305,766	14.4
Cloth.....	2,990,750	766,091	8.5
Bone.....	956,412	124,454	1.4
All other.....	3,482,206	660,703	7.3
Button blanks, made for sale.....	6,991,738	916,003	8.2
All other products.....		1,177,737	10.6

¹ Exclusive of 5,694,439 gross of buttons, valued at \$1,034,843, made by establishments engaged primarily in the manufacture of other products. These products were distributed as follows: Metal buttons, 5,291,200 gross, valued at \$905,469; fresh water pearl, 2,336 gross, valued at \$851; ocean pearl, 51,300 gross, valued at \$52,385; vegetable ivory, 28,000 gross, valued at \$8,400; cloth, 96,913 gross, valued at \$15,420; all other buttons, 224,690 gross, valued at \$52,318.

² Per cent of total for buttons.

³ Per cent of total for pearl buttons.

Including the partial products of other industries, the total number of buttons reported at the census of 1900 was 21,359,518 gross, valued at \$6,510,163. For 1905 the number reported was 35,553,731 gross, valued at \$10,074,872, an increase in number of 14,194,213 gross, or 66.5 per cent, and in value of \$3,564,709, or 54.8 per cent. Comparisons of quantity and value of kinds of buttons can not be made with the census of 1900, owing to the difficulty at that census of an accurate segregation of the statistics for fresh water and ocean pearl buttons. The classification of products was also changed at the census of 1905.

At the census of 1905 the value of buttons formed 81.2 per cent of the total value of all products of the industry, button blanks 8.2 per cent, and "all other products" 10.6 per cent. The button blanks reported were all fresh water pearl, except 186,667 gross of horn, valued at \$28,000. Of the various classes of buttons, pearl is the principal kind. At the census of 1905 this class constituted 53.9 per

cent of the total value of all buttons. As between fresh water and ocean pearl the former greatly predominates, reporting 69 per cent in value of the total pearl against 31 per cent for ocean pearl.

Table 8 is a comparative summary of the general statistics, by states, for establishments reporting fresh water pearl buttons and blanks at the censuses of 1900 and 1905.

TABLE 8.—COMPARATIVE SUMMARY—FRESH WATER PEARL BUTTONS AND BUTTON BLANKS, BY STATES: 1905 AND 1900.

STATE	Census.	Number of establishments.	Capital.	SALARIED OFFICIALS, CLERKS, ETC.		WAGE-EARNERS AND WAGES.		Miscellaneous expenses.	Cost of materials used.	Value of products.
				Number.	Salaries.	Average number.	Wages.			
United States.....	1905	150	\$3,234,379	385	\$276,491	5,085	\$1,621,669	\$319,593	\$1,911,187	\$4,926,458
	1900	122	1,109,572	117	85,646	3,574	1,147,252	89,414	940,838	2,766,053
Illinois.....	1905	13	148,313	16	8,530	259	95,486	14,280	54,353	209,500
	1900	10	37,643	11	6,172	237	85,071	2,616	42,332	181,704
Indiana ²	1905	3	67,901	4	3,460	139	39,459	4,035	14,042	69,068
Iowa.....	1905	51	1,173,866	116	74,685	1,936	653,520	92,530	533,917	1,500,945
	1900	50	314,685	38	24,756	1,335	438,168	36,853	185,257	822,478
Massachusetts ³	1900	3	270,597	10	19,200	388	141,200	12,783	72,188	304,400
Missouri.....	1905	8	126,968	16	5,671	180	55,314	7,588	34,135	136,994
	1900	8	26,995	1	300	64	17,821	962	12,525	34,529
New Jersey.....	1905	11	273,215	22	29,584	330	140,311	36,491	199,114	480,765
	1900	11	77,550	9	9,500	193	75,679	4,323	129,569	310,954
New York.....	1905	27	904,447	163	122,300	1,461	406,837	96,952	818,679	1,844,432
	1900	15	155,834	28	16,613	906	254,027	19,355	366,040	771,482
Ohio.....	1905	3	59,008	5	2,539	66	16,224	4,002	23,796	50,216
	1900	3	48,120	6	4,086	66	17,138	5,487	19,962	56,008
Pennsylvania.....	1905	8	303,830	25	19,826	397	117,568	47,020	135,019	333,732
	1900	6	110,299	4	2,424	223	73,247	3,875	87,697	193,823
Wisconsin.....	1905	17	113,340	11	5,420	187	58,700	10,510	58,064	164,229
	1900	9	34,499	4	1,425	96	32,108	1,830	18,751	63,125
All other states.....	⁴ 1905	9	63,491	7	4,476	130	38,250	6,185	40,068	136,577
	⁵ 1900	7	33,350	6	1,170	66	12,793	1,330	6,517	27,550

¹ Includes \$556,217 worth of ocean pearl buttons.

² No establishments reported in 1900.

³ Included in "all other states" in 1905.

⁴ Includes establishments distributed as follows: Arkansas, 3; Massachusetts, 2; Minnesota, 1; Mississippi, 1; Nebraska, 1; Tennessee, 1.

⁵ Includes establishments distributed as follows: Arkansas, 1; California, 2; Minnesota, 2; Nebraska, 2.

The table includes the figures for establishments reporting both completed buttons and button blanks, for it was found impracticable to segregate the statistics for the manufacture of the completed fresh water pearl buttons from those for the manufacture of fresh water pearl blanks, as in many instances both buttons and blanks were made in the same factory. The statistics also include many establishments in New Jersey, New York, Ohio, and Pennsylvania that made buttons from both fresh water and ocean pearl. The value of all other products is also included.

No fresh water pearl buttons were reported separately for the census of 1890, but at the census of 1900 the manufacture of these buttons constituted the second most important branch of the button industry, and at the present census the making of buttons from fresh water pearl ranks first.

Of the 275 button factories reported at the census of 1905, 150, or 54.5 per cent, made fresh water pearl buttons or button blanks to a greater or less extent, the value of the output amounting to \$4,926,458, or

44.2 per cent of the entire product of button factories. The capital invested in these establishments constituted 41.6 per cent of that invested in the button industry. They gave employment to 48.1 per cent of all wage-earners and paid 44 per cent of all wages.

In 1900 Iowa was the leading state in this branch of the button industry, its product constituting 29.7 per cent of the entire output of fresh water pearl button factories, and New York second, with 27.9 per cent. For 1905, however, New York was first, with 37.4 per cent, and Iowa second, with 30.5 per cent.

The majority of the pearl buttons were made in New York, Iowa, New Jersey, and Pennsylvania, while the blanks were made principally in Iowa, the output in that state during the census year amounting to \$594,946, or 64.9 per cent of the total. Blanks were also made from fresh water pearl in Arkansas, Illinois, Indiana, Missouri, New York, Tennessee, and Wisconsin.

In 1900 the value of the fresh water pearl blanks

was \$656,036, while at the census of 1905 it was \$888,003, or 35.4 per cent greater. The value of fresh water pearl buttons only, as shown in Table 7, was \$3,359,167, or 37.2 per cent of the value of the output of buttons of all kinds for the United States. The value of the buttons made from ocean pearl was \$1,511,107, or 16.7 per cent of the total.

Table 9 is a summary for establishments manufacturing buttons made of vegetable ivory.

TABLE 9.—Summary—vegetable ivory buttons, by states: 1905.

STATE.	Number of establishments.	WAGE-EARNERS AND WAGES.		Miscellaneous expenses.	Cost of materials used.	Value of products.
		Capital.	Average number.			
United States	9	\$745,644	1,001	\$334,647	\$190,010	\$274,434
New Jersey	3	103,809	203	64,611	19,108	66,404
New York	6	641,835	798	270,036	170,902	208,030

In addition, establishments manufacturing many kinds of buttons and classified under "buttons" reported \$297,284 as the value of the vegetable ivory buttons made by them, thus swelling the total production to \$1,305,766.

Imports.—The imports of vegetable ivory are shown in Table 10.

TABLE 10.—Imports of vegetable ivory: 1905 and 1900.¹

	1905	1900
Pounds	19,688,913	16,073,505
Value	\$410,883	\$243,548

¹ Bureau of Statistics, Department of Commerce and Labor, "Commerce and Navigation of the United States."

Table 11 shows the kind and value of buttons and button forms imported and entered for consumption, for 1891, 1895, 1900, and 1905.

TABLE 11.—Value of imports of buttons and button forms: 1905, 1900, 1895, and 1891.¹

KIND.	1905	1900	1895	1891
Total	\$896,451	\$900,982	\$1,084,836	\$2,176,046
Agate buttons	69,341	103,745	195,737	322,003
Bone buttons	675	12,450	(2)	(2)
Collar and cuff buttons and studs	109,552	156,576	(2)	(2)
Glass buttons	39,865	27,937	66,463	
Horn and vegetable ivory buttons	66,977	71,452	267,456	175,343
Metal buttons, not specially provided for	233,664	58,189	79,749	
Nickel bar buttons	378	1,044	(2)	(2)
Pearl or shell buttons	172,101	36,262	375,886	100,001
Shoe buttons of paper, board, etc.	33	425	12,914	6,811
Silk buttons	43,294	805	1,097	17,859
Trouser buttons:				
Steel	855	182	(2)	(2)
Other metal	1,286	530	(2)	(2)
Other buttons, not specially provided for	73,318	18,426	(2)	(2)
Button forms, lastings, mohair cloth, silk, or other manufactures of cloth, made or cut in such manner as to be fit for buttons exclusively	65,112	112,950	85,534	599,848
Not specially provided for, not including brass, gilt, or silk buttons	(2)	(2)	(2)	954,181

¹ Bureau of Statistics, Department of Commerce and Labor, "Commerce and Navigation of the United States."

² Not reported separately.

³ Includes value of bone buttons.

The value of the buttons and button forms imported was \$2,176,046 in 1891. Between 1891 and 1895 the value of such imports decreased to \$1,084,836, the decrease being \$1,091,210, or 50.1 per cent. During the next five years there was a decrease of \$483,854, or 44.6 per cent, and between 1900 and 1905, an increase of \$295,459; or 49.2 per cent. The value of metal buttons, not specially provided for, which constituted the principal class of imports in 1905, increased \$175,475, or 301.6 per cent, in 1905 as compared with 1900, while the increase for pearl or shell buttons for the same period was \$135,839, or 374.6 per cent. Button forms, lastings, etc., decreased \$47,847, or 42.4 per cent.

Table 12 shows the detailed statistics of the button industry, by states, for 1905. The totals for Illinois and Missouri, and Massachusetts and Wisconsin are combined to avoid disclosing certain details.

MANUFACTURES.

TABLE 12.—BUTTONS—DETAILED SUMMARY, BY STATES: 1905.

	United States.	Connecticut.	Illinois and Missouri.	Indiana.	Iowa.	Massachusetts and Wisconsin.	New Jersey.	New York.	Ohio.	Pennsylvania.	All other states. ¹
Number of establishments.....	275	11	32	4	51	30	46	61	4	21	15
Capital, total.....	\$7,783,900	\$1,308,408	\$303,046	\$68,801	\$1,173,866	\$856,354	\$841,635	\$2,033,649	\$59,608	\$718,757	\$419,776
Land.....	\$308,896	\$30,968	\$9,957		\$23,675	\$119,120	\$42,250	\$6,699		\$22,627	\$3,600
Buildings.....	\$838,311	\$239,607	\$20,147		\$79,378	\$148,474	\$87,300	\$43,514		\$134,791	\$85,100
Machinery, tools, and implements.....	\$2,128,823	\$274,649	\$96,691	\$32,477	\$315,391	\$232,285	\$239,721	\$587,950	\$10,694	\$196,988	\$142,007
Cash and sundries.....	\$4,507,870	\$713,184	\$176,251	\$36,324	\$755,422	\$356,475	\$472,364	\$1,395,486	\$48,944	\$364,351	\$189,069
Proprietors and firm members.....	302	5	45	2	69	36		68	3	20	9
Salaried officials, clerks, etc.:.....											
Total number.....	768	69	36	4	116	41	82	333	6	58	23
Total salaries.....	\$711,473	\$95,001	\$16,181	\$3,460	\$74,685	\$59,739	\$93,382	\$284,030	\$3,239	\$53,998	\$27,758
Officers of corporations—											
Number.....	102	14	8		5	14	18	24		14	5
Salaries.....	\$209,101	\$41,120	\$4,298		\$6,156	\$30,820	\$36,307	\$62,448		\$16,802	\$11,150
General superintendents, managers, clerks, etc.—											
Total number.....	666	55	28	4	111	27	64	309	6	44	18
Total salaries.....	\$502,372	\$53,881	\$11,883	\$3,460	\$68,529	\$28,919	\$57,075	\$221,582	\$3,239	\$37,196	\$16,608
Men.....											
Number.....	499	47	22	4	90	19	52	213	4	35	13
Salaries.....	\$427,333	\$49,610	\$10,411	\$3,460	\$58,977	\$24,999	\$51,595	\$178,061	\$2,450	\$34,198	\$13,572
Women.....											
Number.....	167	8	6		21	8	12	96	2	9	5
Salaries.....	\$75,039	\$4,271	\$1,472		\$9,552	\$3,920	\$5,480	\$43,521	\$789	\$2,998	\$3,036
Wage-earners, including pieceworkers, and total wages:											
Greatest number employed at any one time during the year.....	13,834	1,217	775	189	2,809	1,251	1,820	3,923	96	1,328	426
Least number employed at any one time during the year.....	8,415	872	394	101	1,598	851	1,051	2,450	52	758	288
Average number.....	10,567	1,044	480	140	1,936	1,005	1,369	3,237	73	1,009	274
Total wages.....	\$3,680,196	\$410,326	\$161,409	\$40,031	\$653,520	\$377,288	\$550,013	\$1,067,677	\$17,474	\$304,929	\$97,529
Men 16 years and over—											
Average number.....	5,188	416	342	56	1,277	451	779	1,314	21	357	175
Wages.....	\$2,369,595	\$225,934	\$133,983	\$20,521	\$499,616	\$224,064	\$399,911	\$619,313	\$8,291	\$161,895	\$76,067
Women 16 years and over—											
Average number.....	5,024	615	129	84	629	475	541	1,833	47	582	89
Wages.....	\$1,256,375	\$182,573	\$25,851	\$19,510	\$148,008	\$145,627	\$141,762	\$433,048	\$8,533	\$132,320	\$19,143
Children under 16 years—											
Average number.....	355	13	9		30	79	49	90	5	70	10
Wages.....	\$54,226	\$1,819	\$1,575		\$5,896	\$7,597	\$8,340	\$15,316	\$650	\$10,714	\$2,319
Average number of wage-earners, including pieceworkers, employed during each month:											
Men 16 years and over—											
January.....	5,722	430	364	56	1,592	523	838	1,350	21	416	132
February.....	5,699	382	367	59	1,545	540	860	1,376	21	431	118
March.....	5,724	428	354	54	1,505	530	856	1,374	21	428	174
April.....	5,210	467	337	52	1,198	472	811	1,247	21	415	190
May.....	4,879	405	307	59	1,146	420	746	1,230	21	338	207
June.....	4,622	404	262	58	1,037	403	707	1,199	22	330	200
July.....	4,401	443	279	38	867	380	713	1,136	21	318	206
August.....	4,654	381	355	51	1,004	392	692	1,257	23	315	184
September.....	4,859	376	338	49	1,120	402	742	1,321	21	314	176
October.....	5,310	425	371	56	1,320	424	779	1,420	20	321	174
November.....	5,430	390	361	66	1,415	453	785	1,444	20	325	171
December.....	5,746	461	409	74	1,575	473	819	1,414	20	333	168
Women 16 years and over—											
January.....	5,107	604	99	70	651	504	495	1,872	43	690	79
February.....	5,360	624	101	75	656	500	523	2,010	54	740	77
March.....	5,451	634	117	82	641	499	513	2,122	54	710	79
April.....	5,212	659	139	87	634	493	492	1,927	56	641	84
May.....	4,937	583	157	81	625	472	486	1,754	63	630	86
June.....	4,734	602	144	95	626	454	488	1,626	48	565	86
July.....	4,472	628	138	88	528	422	540	1,470	44	514	100
August.....	4,630	560	161	77	540	429	565	1,684	48	470	96
September.....	4,857	564	154	84	620	452	590	1,779	43	476	95
October.....	5,259	651	129	95	687	482	596	1,980	41	506	92
November.....	5,076	593	107	82	678	493	604	1,869	36	523	91
December.....	5,193	678	102	92	662	500	600	1,903	34	519	103
Children under 16 years—											
January.....	330	12	8		27	81	49	74	6	65	8
February.....	351	13	8		31	78	53	84	6	69	9
March.....	349	14	8		27	76	53	78	7	77	9
April.....	354	15	10		29	77	49	83	6	75	10
May.....	341	12	12		27	77	43	80	6	74	10
June.....	358	12	11		30	77	44	98	4	72	10
July.....	352	15	11		31	82	44	88	4	68	9
August.....	363	15	10		31	78	47	105	5	64	12
September.....	341	11	10		31	58	50	104	4	61	12
October.....	381	14	7		32	88	49	107	4	69	11
November.....	370	11	7		32	88	53	97	4	68	10
December.....	370	16	6		32	88	54	82	4	78	10
Miscellaneous expenses, total.....	\$1,012,762	\$171,894	\$33,554	\$4,351	\$92,530	\$69,141	\$105,175	\$400,844	\$4,298	\$91,037	\$39,938
Rent of works.....	\$124,103	\$2,380	\$5,071	\$1,092	\$4,774	\$3,051	\$20,564	\$72,295	\$2,720	\$7,833	\$4,323
Taxes.....	\$25,784	\$6,339	\$1,114	\$126	\$2,468	\$8,556	\$3,208	\$1,973	\$113	\$1,585	\$302
Rent of offices, interest, insurance, and all other sundry expenses not hitherto included.....	\$832,237	\$163,175	\$22,369	\$3,133	\$81,338	\$57,534	\$76,453	\$309,838	\$1,465	\$81,619	\$35,313
Contract work.....	\$30,638		\$5,000		\$3,950		\$4,950	\$16,738			
Materials used, aggregate cost.....	\$4,144,446	\$598,733	\$108,467	\$14,331	\$533,917	\$284,329	\$634,477	\$1,488,421	\$24,021	\$360,106	\$97,644
Principal materials, total cost.....	\$3,456,832	\$391,300	\$95,359	\$8,586	\$455,418	\$229,120	\$525,625	\$1,320,662	\$21,535	\$327,289	\$81,938
Purchased in raw state.....	\$1,551,423	\$45,955	\$61,898	\$8,393	\$312,066	\$32,856	\$373,259	\$558,204	\$21,360	\$110,963	\$26,469
Purchased in partially manufactured form.....	\$1,905,409	\$345,345	\$33,461	\$193	\$143,352	\$196,264	\$152,366	\$762,458	\$175	\$216,326	\$55,469
Fuel.....	\$94,978	\$11,366	\$5,011	\$1,454	\$29,115	\$10,046	\$10,051	\$13,574	\$100	\$8,663	\$5,598
Rent of power and heat.....	\$40,688	\$1,600	\$1,020	\$924	\$180	\$4,320	\$7,932	\$19,322	\$1,080	\$2,900	\$1,410
Mill supplies.....	\$46,456	\$9,620	\$1,627	\$126	\$4,694	\$3,003	\$2,562	\$19,244	\$10	\$5,056	\$514
All other materials.....	\$444,481	\$176,060	\$1,603	\$3,241	\$29,628	\$30,763	\$83,759	\$101,042	\$1,296	\$9,480	\$7,609
Freight.....	\$61,011	\$8,787	\$3,847		\$14,882	\$7,077	\$4,548	\$14,577		\$6,718	\$575

¹ Includes establishments distributed as follows: Arkansas, 3; California, 2; Kentucky, 1; Maine, 1; Maryland, 1; Michigan, 1; Minnesota, 1; Mississippi, 1; Nebraska, 1; New Hampshire, 1; Tennessee, 1; Utah, 1.

TABLE 12.—BUTTONS—DETAILED SUMMARY, BY STATES: 1905—Continued.

	United States.	Connecticut.	Illinois and Missouri.	Indiana.	Iowa.	Massachusetts and Wisconsin.	New Jersey.	New York.	Ohio.	Pennsylvania.	All other states.
Products, aggregate value	\$11,133,769	\$1,446,219	\$404,065	\$70,268	\$1,500,945	\$969,265	\$1,592,261	\$3,849,317	\$54,216	\$899,824	\$346,789
Buttons—											
Total gross	29,859,292	6,286,916	1,158,395	331,652	3,044,469	3,214,232	2,698,193	8,998,814	105,146	3,242,574	778,901
Total value	\$9,040,029	\$962,648	\$249,167	\$67,195	\$893,074	\$790,442	\$1,371,210	\$3,679,682	\$47,413	\$794,718	\$184,480
Metal—											
Gross	6,815,962	4,921,200	900			17,571	1,110,333	563,203			202,755
Value	\$1,312,741	\$590,956	\$4,014			\$6,150	\$329,977	\$337,583			\$44,061
Pearl—											
Total gross	13,143,553		922,387	329,252	3,044,469	437,228	847,065	6,308,221	97,793	1,075,698	81,440
Total value	\$4,870,274		\$204,596	\$65,995	\$893,074	\$145,853	\$775,246	\$2,218,153	\$44,913	\$500,316	\$22,128
Fresh water—											
Gross	11,405,723		904,372	329,252	3,044,469	435,228	310,916	5,414,903	53,486	836,657	76,440
Value	\$3,359,167		\$194,890	\$65,995	\$893,074	\$144,453	\$159,588	\$1,556,893	\$16,028	\$309,868	\$18,378
Ocean—											
Gross	1,737,830		18,015				536,149	893,318	44,307	239,041	5,000
Value	\$1,511,107		\$9,706			\$1,400	\$615,658	\$661,260	\$28,885	\$190,448	\$3,750
Vegetable ivory											
Gross	2,470,409	325,099	95			318,000	412,849	1,414,366			
Value	\$1,305,766	\$82,587	\$165			\$194,831	\$184,235	\$843,948			
Bone—											
Gross	956,412									956,412	
Value	\$124,454									\$124,454	
Cloth—											
Gross	2,990,750	414,927	37,580			1,857,248	197,446	330,296	7,353	120,000	25,900
Value	\$766,091	\$136,820	\$11,892			\$375,989	\$53,752	\$113,498	\$2,500	\$60,000	\$11,640
All other—											
Gross	3,482,206	625,690	197,433	2,400		584,185	130,500	382,728		1,090,464	468,806
Value	\$600,703	\$152,285	\$28,500	\$1,200		\$67,619	\$28,000	\$166,500		\$109,948	\$106,651
Button blanks, made for sale—											
Gross	6,991,738		962,376	(1)	4,575,814	334,379		(1)			21,119,169
Value	\$916,003		\$134,700	(1)	\$594,946	\$42,804		(1)			\$143,553
All other products	\$1,177,737	\$483,571	\$20,798	\$398	\$12,925	\$136,019	\$221,051	\$118,206	\$6,803	\$105,106	\$72,860
Power:											
Number of establishments reporting	236	10	21	3	51	24	38	54	4	20	11
Total horsepower	7,093	919	389	66	1,471	843	729	1,576	29	796	275
Owned—											
Engines—											
Steam—											
Number	91	8	9		35	6	8	11		10	4
Horsepower	4,374	395	250		1,284	417	388	860		595	185
Gas and gasoline—											
Number	75		9	2	25	15	11	6	2	2	3
Horsepower	721		75	28	164	47	96	176	7	100	28
Water wheels—											
Number	9	6				1	1	1			
Horsepower	517	400				70	35	12			
Electric motors—											
Number	9	7			1			1			
Horsepower	111	88			18			5			
Other power, horsepower	8						8				
Rented—											
Electric motors—											
Number	44	1	5	7	1	6	2	17	2	1	2
Horsepower	568	20	64	38	5	280	14	105	22	10	10
Other kind, horsepower	794	16				29	188	418		91	52
Furnished to other establishments, horsepower	57						32	2		23	

¹ Included in "all other states."² Includes products for Indiana and New York.

NEEDLES, PINS,
AND HOOKS AND EYES

NEEDLES, PINS, AND HOOKS AND EYES.

This report presents the statistics for 46 establishments that made a specialty of manufacturing one or more varieties of needles, pins, or hooks and eyes during the calendar year 1904. The statistics for the industry as reported at each census from 1860 to 1905, inclusive, are summarized in Table 1.

TABLE 1.—COMPARATIVE SUMMARY, WITH PER CENT OF INCREASE: 1860 TO 1905.

	CENSUS.						PER CENT OF INCREASE.				
	1905 ¹	1900	1890	1880	1870	1860	1900 to 1905	1890 to 1900	1880 to 1890	1870 to 1880	1860 to 1870
Number of establishments.....	46	52	55	45	48	25	211.5	25.5	22.2	26.3	92.0
Capital.....	\$5,331,939	\$4,617,552	\$2,269,707	\$1,564,738	\$801,050	\$453,200	15.5	103.4	45.1	95.3	76.8
Salaried officials, clerks, etc., number.....	200	135	96	(⁴)	(⁴)	(⁴)	48.1	40.6			
Salaries.....	\$252,818	\$147,207	\$120,891	(⁴)	(⁴)	(⁴)	71.7	21.8			
Wage-earners, average number.....	3,965	2,653	1,827	1,305	841	508	49.5	45.2	40.0	55.2	65.6
Total wages.....	\$1,595,923	\$1,067,364	\$755,555	\$480,535	\$358,669	\$143,832	49.5	41.3	57.2	34.0	149.4
Men 16 years and over.....	1,862	1,362	1,017	743	445	268	36.7	33.9	36.9	67.0	66.0
Wages.....	\$1,031,141	\$712,796	\$527,289	(⁴)	(⁴)	(⁴)	44.7	35.2			
Women 16 years and over.....	1,860	1,148	787	443	293	240	62.0	45.9	77.7	51.2	22.1
Wages.....	\$522,379	\$329,427	\$223,191	(⁴)	(⁴)	(⁴)	58.6	47.6			
Children under 16 years.....	243	143	23	119	103	(⁴)	69.9	521.7	80.7	15.5	
Wages.....	\$42,403	\$25,141	\$5,075	(⁴)	(⁴)	(⁴)	68.7	395.4			
Miscellaneous expenses.....	\$587,471	\$247,229	\$104,682	(⁴)	(⁴)	(⁴)	137.6	136.2			
Cost of materials used.....	\$1,583,644	\$1,227,997	\$776,057	\$805,999	\$446,062	\$357,936	29.0	58.2	23.7	80.7	24.6
Value of products.....	\$4,750,589	\$3,237,982	\$2,109,469	\$1,748,101	\$1,225,436	\$725,086	46.7	53.5	20.7	42.7	69.0

¹ Exclusive of the statistics of 17 establishments engaged primarily in the manufacture of other products. These establishments manufactured needles, pins, and hooks and eyes to the value of \$942,506.

² Decrease.

³ Includes proprietors and firm members, with their salaries; number only reported in 1900 and 1905, but not included in this table.

⁴ Not reported separately.

⁵ Not reported.

⁶ Exclusive of needles, pins, and hooks and eyes, valued at \$536,742, made by establishments engaged primarily in the manufacture of other products.

Although the number of establishments has decreased since 1890, the industry as a whole has constantly increased since 1860. The capital, number of wage-earners, amount paid annually in wages, and the value of products have all more than doubled since 1890. The actual increase in the value of products was greater during the period since 1900 than during the entire decade ending with that year. Between 1900 and 1905 the average number of wage-earners increased 1,312 as compared with 826 for the decade ending in 1900, while the value of products increased \$1,512,607 as compared with \$1,128,513. The decrease in the number of establishments is due probably to consolidation or the discontinuance of some of the smaller plants. The period between the census of 1900 and that of 1905 in reality covers only four and one-half years, as the figures for 1900 relate to the census year ending May 31, 1900, while the figures for 1905 relate to the calendar year ending December 31, 1904.

The products represented in Table 1 by the gross value, \$4,750,589, consist of knitting machine and sewing machine needles, common toilet pins, hairpins,

safety pins, hooks and eyes, and other miscellaneous products.

The manufacture of pins was first reported as an industry at the census of 1850, and that of needles and hooks and eyes at the census of 1860. It is probable, however, that these articles were manufactured to some extent prior to the time at which their production first appeared in the Census reports as distinct industries. At the census of 1860 these articles were reported in four separate classes—pins, needles, sewing machine needles, and hooks and eyes; but from 1870 to 1900 they were consolidated into the two classes—needles and pins and hooks and eyes. At the present census it was found advisable to combine these two classes into one, because some establishments manufacture common pins or hairpins as well as hooks and eyes, which makes a separation practically impossible.

Products.—Table 2 is a detailed statement, for the United States, of the quantity and value of the different varieties of needles and pins manufactured as reported at the censuses of 1900 and 1905. As it was found impracticable to show the quantity of hooks and

eyes separately, the value thereof is included in the value of "all other products."

TABLE 2.—*Products, by kind, quantity, and value: 1905 and 1900.*

	1905	1900
Aggregate value.....	\$4,750,589	\$3,237,982
Needles—		
Total gross.....	1,420,176	1,120,532
Total value.....	\$1,140,924	\$1,027,949
Knitting machine—		
Latch.....		
Gross.....	310,846	276,141
Value.....	\$422,655	\$414,504
Spring.....		
Gross.....	332,788	307,266
Value.....	\$118,223	\$114,660
Sewing machine—		
Common household dry thread—		
Gross.....	420,249	324,476
Value.....	\$475,913	\$399,252
Wax thread—		
Gross.....	356,293	212,649
Value.....	\$124,133	\$99,533
Pins—		
Total gross.....	136,887,782	50,167,817
Total value.....	\$2,067,637	\$898,054
Common or toilet—		
Gross.....	132,632,232	47,338,429
Value.....	\$1,129,006	\$465,605
Hair—		
Gross.....	1,704,900	1,189,104
Value.....	\$109,245	\$78,155
Safety—		
Gross.....	2,550,650	1,640,284
Value.....	\$829,386	\$354,294
All other products, including hooks and eyes.....	\$1,542,028	\$1,311,979

During the year covered by the census of 1905, as shown in Table 2, there were made in the United States 1,420,176 gross of needles and 136,887,782 gross of pins. These figures, however, do not represent the total output of these articles, as a considerable quantity was manufactured in establishments engaged in industries in which the making of needles and pins was merely incidental. As far as could be ascertained, this class of establishments at the census of 1905 produced 345,897 gross of needles, valued at \$377,487, and pins, valued at \$565,019. The value of pins reported from other industries represents largely horn hairpins. The figures of the secondary products, combined with those shown in Table 2, make the output of these articles 1,766,073 gross of needles, valued at \$1,518,411, and pins, valued at \$2,632,656—a total value of \$4,151,067 for both classes of products. In 1900 the total value of needles and pins, including secondary products from other industries, was \$2,462,745.

Owing to the danger of disclosing the operations of individual establishments it was impracticable to publish the details for each of the various products of this industry manufactured in the several states, but by reference to Table 5 the rank of the states in the industry as a whole can be determined. The proportion of the total value of products, formed by the output of each state, is as follows: Connecticut, 64.4 per cent; New Hampshire, 4.4 per cent; New York, 5.9 per cent; Pennsylvania, 10.5 per cent; and California, Illinois, Massachusetts, Michigan, Missouri, New Jersey, Vermont, and Wisconsin, with 13 establishments in all, 14.8 per cent.

Considering for the present only the establishments under the industry classification in 1905, it appears

that the manufacture of sewing machine needles was confined to Connecticut and Massachusetts, and by far the largest number of common pins was made in Connecticut, in which state also was manufactured a large portion of the hooks and eyes and hairpins. The largest production of knitting machine needles was reported by New Hampshire. The 6 establishments in that state were engaged exclusively in their manufacture. Hooks and eyes was the chief product in Pennsylvania. Although the only establishment manufacturing safety pins exclusively was located in New Jersey, this kind of pin was also made in Connecticut and New York.

The distribution of the 17 establishments which for 1905 reported needles and pins and hooks and eyes as a secondary product was as follows: Connecticut, 3 (common and safety pins, and hooks and eyes); New Hampshire, 1 (knitting machine needles); New Jersey, 1 (sewing machine needles); New York, 1 (sewing machine needles); and Massachusetts, 11 (horn hairpins).

Table 3 shows the distribution, by states, of the active plants engaged in this industry in 1860 and 1905.

TABLE 3.—*Number of establishments, by states: 1905 and 1860.¹*

STATE.	1905	1860
United States.....	46	25
California.....	1	.....
Connecticut.....	13	8
Illinois.....	1	.....
Massachusetts.....	3	8
Michigan.....	2	.....
Missouri.....	1	.....
New Hampshire.....	6	.....
New Jersey.....	2	1
New York.....	8	7
Pennsylvania.....	6	1
Vermont.....	2	.....
Wisconsin.....	1	.....

¹ Does not include establishments producing needles, pins, or hooks and eyes as secondary products.

From Table 3 it is seen that with respect to the number of establishments Connecticut and Massachusetts were the two foremost states in this industry in 1860, each having 8 establishments. While Connecticut remained of first importance up to 1905, Massachusetts fell from first to fifth place during the same period. It is of interest, also, to note that some of the plants active in Connecticut at the census of 1905 had their original establishment in operation in 1860.

Of the 46 plants engaged in this industry at the census of 1905, 36 were engaged chiefly in the manufacture of one kind of product. Of this latter number, 21 made knitting machine needles; 6, hooks and eyes; 4, sewing machine needles; 3, common pins; 1, safety pins; and 1, hairpins. Of the remaining 10, 2 manufactured common pins and hairpins; 1, hairpins and hooks and eyes; 1, common and safety pins and hooks and eyes; 2, common and safety pins; 1, knitting machine and sewing machine needles; and 3, specialties, such as embroidery and bag needles.

In 1860, 12 plants manufactured sewing machine needles; 7 made pins; 5, hooks and eyes; and 1, needles, other than sewing machine needles.

Imports.—Table 4 presents the value of needles, pins, and hooks and eyes imported in each year from 1900 to 1905, inclusive.

TABLE 4.—VALUE OF NEEDLES, PINS, AND HOOKS AND EYES IMPORTED: 1900 TO 1905.¹

	1905	1904	1903	1902	1901	1900
Total value.....	\$695,984	\$762,086	\$687,417	\$623,998	\$582,479	\$571,892
Needles, total.....	551,125	615,959	549,976	473,669	435,344	418,004
Needles for knitting or sewing machines, including latch needles.....	102,276	110,329	66,760	27,208	14,484	13,201
Crochet, tape, and knitting needles, and all others not specially provided for.....	42,788	49,904	40,775	37,626	38,188	37,532
Hand sewing and darning needles.....	406,061	455,726	442,441	408,835	382,672	367,271
Pins.....	138,431	138,724	128,229	134,093	132,102	130,264
Hooks and eyes.....	6,428	7,403	9,212	16,236	15,033	23,624

¹ Bureau of Statistics, Department of Commerce and Labor, "Commerce and Navigation of the United States."

The importation of the common hand sewing and darning needle in 1905, as shown in Table 4, was very large, although smaller than in any year since 1901. The yearly importations of the common hand sewing and darning needles, and crochet, tape, and knitting needles practically represent the value of such needles used each year in the United States, as none of these varieties, so far as the census returns indicate, are made in this country. Since 1900 there has been a decided increase in the importation of knitting and sewing machine needles, which indicates that the demand for these varieties of needles is far more in excess of the domestic output than at the census of 1900. In that year the importations of these varieties of needles were valued at \$13,201 and the domestic output at \$1,027,949, while for 1905 the value of the importations had increased to \$102,276 and that of the home product to \$1,140,924.

The value of imported pins has, with the exception of 1903, shown a steady but small increase each year. The increase from 1900 to 1905, however, did not keep pace with the increase of the home production. On

the other hand, the value of hooks and eyes imported has declined sharply and steadily. Although the value of the domestic production of hooks and eyes is not shown separately for 1905, the increase over 1900 was very large.

The domestic production of needles, pins, and hooks and eyes is practically all consumed in the United States; no exportation of these articles appears in the statistics of exports.

It was not considered necessary in this report to introduce any historical data relating to the manufacture of needles and pins, or to give any description of the present and past methods and processes of manufacturing these articles, as this branch of the subject was discussed in the Twelfth Census, Report on Manufactures, Part IV, page 427. The history of the manufacture of hooks and eyes is allied so closely and is so similar to that of needles and pins that it was considered unnecessary to introduce it in this report.

The detailed statistics for 1905, except those of the quantity and value of the several kinds of products, are presented, by states, in Table 5.

TABLE 5.—NEEDLES, PINS, AND HOOKS AND EYES—DETAILED SUMMARY, BY STATES: 1905.

	United States.	Connecticut.	New Hampshire.	New York.	Pennsylvania.	All other states. ¹
Number of establishments.....	46	13	6	8	6	13
Capital, total.....	\$5,331,939	\$2,834,893	\$227,767	\$266,409	\$1,328,787	\$674,083
Land.....	\$75,847	\$24,700	\$14,500	\$600	\$250	\$25,797
Buildings.....	\$390,088	\$231,186	\$35,409	\$7,800	\$1,200	\$94,493
Machinery, tools, and implements.....	\$1,180,186	\$363,904	\$66,183	\$109,300	\$221,422	\$219,377
Cash and sundries.....	\$3,685,818	\$1,985,103	\$111,675	\$148,709	\$1,105,915	\$334,416
Proprietors and firm members.....	31	7	1	8	6	9
Salaried officials, clerks, etc.:.....						
Total number.....	200	130	11	13	14	32
Total salaries.....	\$252,818	\$157,881	\$12,119	\$19,476	\$30,122	\$33,220
Officers of corporations—						
Number.....	35	19	4	3	2	7
Salaries.....	\$100,558	\$53,400	\$6,058	\$10,000	\$18,500	\$12,600
General superintendents, managers, clerks, etc.—						
Total number.....	165	111	7	10	12	25
Total salaries.....	\$152,260	\$104,481	\$6,061	\$9,476	\$11,622	\$20,620
Men—						
Number.....	116	80	4	7	7	18
Salaries.....	\$128,210	\$88,940	\$5,168	\$7,860	\$9,022	\$17,220
Women—						
Number.....	49	31	3	3	5	7
Salaries.....	\$24,050	\$15,541	\$893	\$1,616	\$2,600	\$3,400
Wage-earners, including pieceworkers, and total wages:						
Greatest number employed at any one time during the year.....	5,646	2,446	404	1,673	297	826
Least number employed at any one time during the year.....	3,732	2,210	302	251	287	682
Average number.....	3,965	2,326	353	260	288	738
Total wages.....	\$1,595,923	\$1,055,149	\$127,020	\$81,686	\$63,491	\$268,577
Men 16 years and over—						
Average number.....	1,862	1,223	189	75	40	325
Wages.....	\$1,031,141	\$718,481	\$82,104	\$45,876	\$23,370	\$161,310
Women 16 years and over—						
Average number.....	1,860	965	159	185	188	363
Wages.....	\$322,379	\$311,492	\$43,546	\$35,810	\$33,338	\$98,193
Children under 16 years—						
Average number.....	243	128	5	.....	60	50
Wages.....	\$42,403	\$25,176	\$1,370	.....	\$6,783	\$9,074

¹ Includes establishments distributed as follows: California, 1; Illinois, 1; Massachusetts, 3; Michigan, 2; Missouri, 1; New Jersey, 2; Vermont, 2; Wisconsin, 1.

MANUFACTURES.

TABLE 5.—NEEDLES, PINS, AND HOOKS AND EYES—DETAILED SUMMARY, BY STATES: 1905—Continued.

	United States.	Connecticut.	New Hampshire.	New York.	Pennsylvania.	All other states.
Average number of wage-earners, including pieceworkers, employed during each month:						
Men 16 years and over—						
January.....	1,833	1,180	195	75	44	339
February.....	1,867	1,223	201	75	41	327
March.....	1,884	1,237	199	76	41	331
April.....	1,848	1,213	200	76	38	321
May.....	1,832	1,209	195	76	38	314
June.....	1,821	1,207	187	76	37	314
July.....	1,810	1,196	189	74	37	314
August.....	1,870	1,259	169	74	40	328
September.....	1,903	1,279	178	75	40	331
October.....	1,895	1,271	181	75	40	328
November.....	1,892	1,265	185	74	42	326
December.....	1,889	1,257	189	74	42	327
Women 16 years and over—						
January.....	1,827	940	166	185	188	358
February.....	1,872	967	169	185	188	363
March.....	1,887	973	175	185	188	366
April.....	1,876	970	163	185	188	370
May.....	1,860	964	161	185	188	362
June.....	1,855	951	155	185	188	376
July.....	1,852	963	148	185	188	368
August.....	1,823	954	139	185	188	357
September.....	1,871	970	156	185	188	372
October.....	1,870	978	159	185	188	360
November.....	1,868	984	159	185	188	352
December.....	1,849	966	158	185	188	352
Children under 16 years						
January.....	250	130	7	59	59	54
February.....	246	131	5	59	59	51
March.....	241	128	4	59	59	50
April.....	238	125	5	59	59	49
May.....	241	123	5	59	59	52
June.....	236	121	5	59	59	51
July.....	251	133	5	59	60	53
August.....	251	133	4	59	61	53
September.....	248	132	5	59	62	49
October.....	240	126	5	59	60	49
November.....	237	126	5	59	61	45
December.....	237	128	5	59	60	44
Miscellaneous expenses, total.....	\$587,471	\$420,085	\$8,190	\$39,678	\$71,742	\$47,776
Rent of works.....	\$123,655	\$106,589	\$640	\$4,780	\$9,430	\$2,216
Taxes.....	\$19,133	\$12,026	\$982	\$893	\$20	\$5,212
Rent of offices, interest, insurance, and all other sundry expenses not hitherto included.....	\$444,683	\$301,470	\$6,568	\$34,005	\$62,292	\$40,348
Materials used, total cost.....	\$1,583,644	\$1,182,375	\$24,536	\$108,985	\$73,757	\$193,991
Purchased in partially manufactured form.....	\$1,183,643	\$896,345	\$16,235	\$94,286	\$35,513	\$141,264
Fuel.....	\$36,141	\$28,059	\$974	\$512	\$246	\$6,350
Rent of power and heat.....	\$8,495	\$1,650	\$1,234	\$2,696	\$1,145	\$1,770
Mill supplies.....	\$19,718	\$9,562	\$1,337	\$1,236	\$116	\$7,467
All other materials.....	\$332,181	\$245,468	\$3,580	\$10,222	\$36,697	\$36,214
Freight.....	\$3,466	\$1,291	\$1,176	\$33	\$40	\$926
Products, total value.....	\$4,750,589	\$3,062,193	\$208,208	\$278,896	\$497,885	\$703,407
Power:						
Number of establishments reporting.....	45	12	6	8	6	13
Total horsepower.....	2,840	2,029	274	89	38	380
Owned—						
Engines—						
Steam—						
Number.....	28	13	4	3	1	7
Horsepower.....	1,816	1,366	95	22	6	327
Gas and gasoline—						
Number.....	4				1	3
Horsepower.....	14				4	10
Water wheels—						
Number.....	10	6	4			
Horsepower.....	340	228	112			
Electric motors—						
Number.....	17	16	1			
Horsepower.....	400	375	25			
Rented—						
Electric motors—						
Number.....	15		4	5	1	5
Horsepower.....	129		42	52	2	33
Other kind, horsepower.....	141	60		15	56	10
Furnished to other establishments, horsepower.....	450	450				

OILCLOTH AND LINOLEUM

OILCLOTH AND LINOLEUM.

The manufacture of oilcloth in this country began probably about 1807; but it does not appear in the Census statistics as a separate industry until 1850. Prior to the census of 1905 the industry was variously classified under oilcloth; oil and enameled cloth; oil floor cloth; oilcloth, floor; and oilcloth, enameled. At this census the classifications are oilcloth and linoleum, floor; and oilcloth, enameled.

For this report the two classifications used at the census of 1905 have been combined as "oilcloth and linoleum," but the specified products of each are presented separately in Table 4.

Table 1 is a comparative summary of the statistics for the combined industry from 1850 to 1905, with per cent of increase.

TABLE 1.—COMPARATIVE SUMMARY, WITH PER CENT OF INCREASE: 1850 TO 1905.

CENSUS.							PER CENT OF INCREASE.					
1905	1900	1890	1880	1870	1860	1850	1900 to 1905	1890 to 1900	1880 to 1890	1870 to 1880	1860 to 1870	1850 to 1860
Number of establishments	27	27	28	29	34	49	56	13.6	13.4	114.7	130.6	112.5
Capital	\$13,803,232	\$8,879,102	\$4,477,256	\$3,744,550	\$2,237,000	\$1,606,700	\$640,700	98.3	19.6	67.4	39.2	150.8
Salaried officials, clerks, etc., number	217	153	288	(3)	(3)	(3)	(3)	41.8	73.9			
Salaries	\$361,230	\$294,523	\$121,905	(3)	(3)	(3)	(3)	22.6	141.6			
Wage-earners, average number	3,883	3,230	1,862	1,993	1,411	1,538	650	20.2	73.5	16.6	41.2	18.3
Total wages	\$1,943,757	\$1,628,113	\$928,525	\$849,862	\$687,288	\$517,296	\$178,854	19.4	75.3	9.3	23.7	189.2
Men 16 years and over	3,734	3,138	1,812	1,905	1,343	1,515	648	19.0	73.2	14.9	41.8	133.8
Wages	\$1,905,105	\$1,600,899	(3)	(3)	(3)	(3)	(3)	19.0				
Women 16 years and over	59	49	8	7	17	23	2	20.4	512.5	14.3	158.8	1,050.0
Wages	\$19,456	\$14,800	(3)	(3)	(3)	(3)	(3)	31.5				
Children under 16 years	90	43	42	81	51	(3)	(3)	109.3	2.4	148.1	58.8	
Wages	\$19,196	\$12,414	(3)	(3)	(3)	(3)	(3)	54.6				
Miscellaneous expenses	\$1,369,545	\$521,957	\$262,693	(3)	(4)	(4)	(4)	162.4	98.7			
Cost of materials used	\$10,050,009	\$7,549,672	\$3,363,813	\$3,982,908	\$2,548,768	\$2,375,975	\$829,706	33.1	124.4	115.5	56.3	186.4
Value of products	\$14,792,246	\$11,402,620	\$5,481,087	\$5,814,587	\$4,211,579	\$3,602,216	\$1,256,994	29.7	108.0	15.7	38.1	186.6

¹ Decrease.

² Includes proprietors and firm members, with their salaries; number only reported in 1900 and 1905, but not included in this table.

³ Not reported separately.

⁴ Not reported.

During the period of fifty-five years covered by Table 1 the number of establishments decreased from 56 for 1850 to 27 for 1905. This decrease was much more rapid in the decades from 1850 to 1880 than in the subsequent years.

In spite of this decrease the capital invested increased constantly. The greatest actual increase, \$4,924,130, occurred from 1900 to 1905, while the greatest percentage of increase was in the decade 1850 to 1860. The next greatest increase, not only in actual amount, but also in per cent, was in the decade 1890 to 1900, when capital increased \$4,401,846, or 98.3 per cent.

The number of wage-earners also increased greatly during the period; but this increase has not been constant, since the number decreased between 1860 and 1870 and again between 1880 and 1890. Men 16 years and over are chiefly concerned in these figures, for

the industry for 1905 employed 3,734 men and only 59 women and 90 children. The wages of employees increased from \$178,854 for 1850 to \$1,943,757 for 1905, and each census shows a larger total than the preceding.

For both cost of materials used and value of products the greatest per cent of increase was in the decade 1850 to 1860, while the greatest absolute increase was in the decade 1890 to 1900. From 1900 to 1905 the cost of materials increased 33.1 per cent and the value of products, 29.7 per cent.

As shown in Table 2, Maine, Massachusetts, New Jersey, New York, and Pennsylvania were credited with establishments at every census from 1850 to 1905. In 1850 New York, with 19 establishments, ranked first, and Pennsylvania, with 17, second; while for 1905 New Jersey, with 10 establishments, ranked first, and New York, with half that number, second.

TABLE 2.—Number of establishments, by states: 1850 to 1905.

STATE.	1905	1900	1890	1880	1870	1860	1850
United States.....	27	27	28	29	34	49	56
Connecticut.....							1
Illinois.....	2						
Kentucky.....						1	2
Maine.....	1	3	3	4	6	8	6
Maryland.....							1
Massachusetts.....	3	2	3	3	2	5	1
Michigan.....	1	1					
Missouri.....							1
New Hampshire.....					1	1	2
New Jersey.....	10	8	12	10	9	14	4
New York.....	5	8	9	10	12	12	19
Ohio.....	3	2				2	2
Pennsylvania.....	2	3	1	2	4	6	17

Table 3 presents a summary of the statistics for Massachusetts and New Jersey. Other states having establishments engaged in this industry are grouped in the class "all other states," in order to avoid disclosing individual operations.

TABLE 3. Summary, by states: 1905.

	United States.	Massachusetts.	New Jersey.	All other states. ¹
Number of establishments.....	27	3	10	14
Capital.....	\$13,803,232	\$287,897	\$5,151,496	\$8,363,839
Salaries, number.....	217	11	83	123
Salaries.....	\$361,230	\$21,958	\$112,291	\$226,981
Wage-earners, average number.....	3,883	128	1,464	2,291
Total wages.....	\$1,943,757	\$60,520	\$701,078	\$1,182,159
Men 16 years and over.....	3,734	122	1,378	2,234
Wages.....	\$1,905,105	\$58,031	\$682,883	\$1,164,191
Women 16 years and over.....	59	4	1	54
Wages.....	\$19,456	\$2,001	\$285	\$17,170
Children under 16 years.....	90	2	85	3
Wages.....	\$19,196	\$488	\$17,910	\$798
Miscellaneous expenses.....	\$1,369,545	\$28,737	\$558,888	\$781,920
Cost of materials used.....	\$10,050,009	\$898,985	\$3,666,411	\$5,484,613
Value of products.....	\$14,792,246	\$1,089,859	\$5,444,396	\$8,257,991

¹ Includes establishments distributed as follows: Illinois, 2; Maine, 1; Michigan, 1; New York, 5; Ohio, 3; Pennsylvania, 2.

Table 3 shows that the leading state is New Jersey. Of the total for every item shown in Table 3, with the comparatively unimportant exceptions of salaries, number of women wage-earners, and their wages, New Jersey contributed at least one-third.

Products.—Table 4 gives the kind, quantity, and value of the various products of the industry, together with the per cent each is of the total value of products, 1905.

TABLE 4.—Products, by kind, quantity, and value, with per cent of total value: 1905.

KIND.	Quantity (square yards).	VALUE.	
		Amount.	Per cent of total.
Aggregate.....	91,677,155	\$14,792,246	100.0
Oilcloth, total.....	74,785,693	9,201,548	62.2
Floor.....	21,387,430	3,554,794	24.0
Carriage.....	69,185	10,895	0.1
Enameled.....	11,574,986	1,542,467	10.4
Table.....	38,026,083	3,540,181	24.0
Upholstery.....	937,616	254,851	1.7
Other.....	2,790,393	298,360	2.0
Linoleum, including cork carpet.....	14,765,284	4,223,992	28.5
Inlaid linoleum.....	2,126,178	1,104,808	7.5
All other products.....	(¹)	261,808	1.8

¹ Not reported.

The oilcloths, as indicated in Table 4, are far more important, both in quantity and value, than the linoleums. The value of linoleum, including cork carpet, however, exceeds the value of any one of the various kinds of oilcloth. Of the oilcloths, those used for floor coverings are of the greatest value, although they exceed but slightly the table coverings. The quantity of table coverings was greater than that of floor coverings by over sixteen and one-half million square yards.

Imports and exports.—Table 5 gives the imports and exports of oilcloth and linoleum from 1898 to 1905.

TABLE 5.—Imports and exports of oilcloth and linoleum: 1898 to 1905.¹

YEAR.	IMPORTS.		Exports (value).
	Square yards.	Value.	
1905.....	3,508,855	\$1,220,372	\$269,929
1904.....	3,381,534	1,201,070	231,297
1903.....	3,358,655	1,105,894	221,417
1902.....	1,824,579	681,464	189,291
1901.....	1,306,222	532,255	172,635
1900.....	832,405	407,008	141,917
1899.....	416,658	216,210	132,532
1898.....	(²)	(²)	118,641

¹ Bureau of Statistics, Department of Commerce and Labor. Statistical Abstract of the United States, 1905.

² Not reported separately prior to 1899.

The most striking feature presented in Table 5 is the enormous increase in the amount of oilcloth and linoleum imported. In 1899 the imports amounted to only 416,658 square yards, valued at \$216,210, but in 1905 they had increased to 3,508,855 square yards, valued at \$1,220,372. Although each succeeding year has witnessed an increase, the greatest one occurred between 1902 and 1903. In that year the amount imported increased 1,534,076 square yards and its value \$424,430.

The value of exports of oilcloth and linoleum has also increased steadily from year to year, although the rate of increase has not been nearly as great as in the case of the imports. In 1898 products of this industry to the value of \$118,641 were exported and in 1905 the corresponding figure was \$269,929, an increase of \$151,288, or 127.5 per cent. The greatest increase in exports in any one year occurred in 1902–3, which was also the year when imports increased most.

By adding the value of oilcloth and linoleum imported to that manufactured, and subtracting the value exported, it will be seen that the amount available for consumption in the United States for 1905 was valued at \$15,742,689.

HISTORICAL AND DESCRIPTIVE.

The art of making oilcloth originated with Nathan Taylor at Knightsbridge, near London, England, in 1754. The pattern at first was stenciled and afterwards, beginning in 1780, was printed from blocks.¹ When the manufacture was first undertaken in America is uncertain. Bishop states that in 1807 "a manufac-

¹ Knight's American Mechanical Dictionary, page 888.

tory of a new article of patent floor cloth or summer carpet was in operation in Philadelphia." The cloth is described as "strongly woven, for the purpose of the best floor, on a seven-yard loom, without seam, of any peculiar size or shape. The carpets were furnished plain or in colors, with borders to match, at from \$1.25 to \$2 per square yard, according to the number of colors; and when partly worn could be recoated, painted, or ornamented, and with appropriate borders. By the same process old woolen or worsted carpets could be coated on one side at half price; and baize or coverings for trunks and baggage made waterproof. The manufacture appears to have been that at present known as floor oilcloth."

This seems to be the first attempt in the United States to manufacture oiled cloth for floor covering. A Mr. Macauley, of Philadelphia, is mentioned as being, in 1821, "the proprietor of a manufactory of woolen carpet, patent floor cloth, and oilcloth, which last were now made in different parts of the Union." In a list of patents issued during the year 1825 appears the name of Isaac Macauley, of Philadelphia, who was granted a patent on an improvement in making oilcloth. "Mr. Macauley had carried on the manufacture for several years in Philadelphia, and was probably the first in this country." Bishop, in referring to the manufacture of enameled cloth by the Taunton Oil Cloth Co., of Taunton, Mass., in 1860, alludes to this oil or enameled cloth as a "novel article."

Regarding linoleum, the Carpet and Upholstery Trade Review says:²

The linoleum industry is closely associated with the cork trade; the materials used being cork scraps and cuttings mixed with linseed oil. The process was invented by Frederick Walton in England, in 1860, and the product was first brought out under the name of "kamptulicon," but when improved received the name of "linoleum."

The Textile Mercury says there are some fifty establishments in all for its manufacture in Europe, of which thirty are in the United Kingdom, employing 2,500 hands and having a combined capital of over £1,000,000; ten in Germany, a few in France and Russia, and one in Italy. This last is at Narni, in Umbria, where a Lombard company with large capital buys up cork cuttings, and the soft cork which is taken from the younger trees which grow in the groves by the seashore. They make a linoleum which is about half cork, and consume about 150 tons of cork annually.

Floor oilcloth.—The following is taken from the "History and Manufacture of Floor Coverings:"³

In the manufacture of floor oilcloth the first step is the preparation of the foundation, which is composed of jute burlap.

It is necessary to size the foundation, and in making narrow oilcloths the sizing is done by drawing the burlap through troughs filled with liquid glue, rye flour, tapioca, or varnish, the best among these different sizings being a matter of opinion among manufac-

turers. The burlap is drawn through the troughs by means of rollers, which press the surplus sizing out of the cloth as it passes between them.

The sized surface is then rubbed thoroughly with pieces of pumice stone, this operation being performed either by hand or by simple mechanical arrangement, in which the "rubbers" are moved over the surface by steampower.

When the cloth has been rubbed smooth and even it is then covered with a mixture composed of ocher, linseed oil, and benzine. In order to make this coating even and uniform in thickness the cloth is passed under an arrangement of metal blades which scrape off superfluous paint. The coating, when dry, is rubbed smooth with pumice stone, and this process of coating and rubbing is performed several times, the number depending on the quality of the goods desired.

The printing of the pattern on the cloth, which is the next step in the process, was formerly done by hand entirely, but most manufacturers now use machinery for this purpose. In printing by machinery the cloth passes over a flat table and under the printing blocks, which have a rising and falling motion. In the old manner of printing by hand the blocks were 18 inches square, and only this amount of surface was printed at one time with each block, but in the present method the blocks extend entirely across the cloth. The printing blocks are made of wood, and each color used in the pattern requires a separate block. The pattern is carved on the block in relief, the portions left uncut being those which form the design. * * *

The colors employed are spread on the blocks by an arrangement of troughs and rollers. A roller revolving in a trough filled with coloring material passes across the face of a printing block, which then descends upon the cloth, makes its particular impression and rises again, each block printing its own separate color in this way until the pattern is complete.

When the printing is completed the cloth is taken to the drying room, where artificial heat is employed to facilitate the drying. When sufficiently dry and hard the cloth is placed flat upon a platform, varnished, trimmed, and rolled up ready for the market.

The blocks used for printing are made of the best white pine, thoroughly seasoned. They are about 1½ inches thick and are faced with hard wood, usually maple, which is glued on. The face is generally creased by sawing fine parallel lines in one direction or both before the carving, as this facilitates the tracing of the design and the cutting away of the superfluous wood. In order to get certain effects in the printing, some parts of the design may be cut or punched in metal, these portions being then fastened to the faces of the blocks as required.

The pattern to be used is drawn and painted in full on paper, every color and part of the design being produced exactly as it is ultimately to appear. This design is then reproduced on the surface of the printing blocks, the number of these depending, as has been explained, upon the number of colors in the pattern. The part of the design apportioned to each particular block is transferred to it by a tracing process, and the figure is then cut in relief, as indicated by the tracing.

Besides the carved blocks, manufacturers use what are called pin-blocks. These are made in three pieces to prevent warping, the pieces being securely cemented together. The middle one is of pine and the outer ones are of maple, the grain of these running at right angles to that of the inner piece. The printing surface is sawed across at close intervals in two directions at right angles to each other, and a surface is thus produced composed of pins or pegs, the narrow interstices being regular and uniform. In preparing the block for its design all the pins not necessary for producing the figure desired are cut away.

The process of manufacturing sheet oilcloth differs somewhat from that which has been described, but the difference is simply

¹ J. L. Bishop, *History of American Manufactures*, Vol. II, pages 120, 270, and 304.

² Vol. 34, Number 7.

³ New York Review Publishing Co., pages 79 ff.

in the manipulation of the cloth, the composition of the goods and general principles of manufacture being the same.

Linoleum.—The two main ingredients in the manufacture of linoleum are cork and linseed oil, to which are added smaller quantities of kauri gum, resin, and pigments of various kinds. In the manufacture of bottle corks about one-half of the cork is wasted, and this waste is the chief source of the cork for linoleum. The cork waste, after being freed from dust and other admixed substances by means of a sieve with a rapid reciprocating motion, is crushed. This sounds very simple, but, as a matter of fact, the machinery required for the actual operation has to be of special character on account of the elasticity of cork and the almost incredible rapidity with which it blunts the hardest steel knife edge. The breaker reduces the cork to pieces of about the size of a pea, in which state it is passed on to the grinding mill, which is like an ordinary flour mill, but with stones of lava, sandstone, or some other rough material. Cork dust, being excessively light, quickly disseminates itself through the air of the mill; hence the utmost precautions have to be taken to prevent the explosive mixture of air and cork dust being set on fire. Even when the greatest care has been observed small explosions are sometimes caused by sparks from the machinery.

The next stage in the manufacture is the preparation of what is technically known as "cement," the chief ingredient of which is oxidized linseed oil. As everyone knows, oils are divisible into two classes, dry and nondrying oils, the drying being brought about in the case of the first-named by the absorption of oxygen from the air, and the consequent transformation of the oil into a solid resinous mass. For linoleum manufacture the linseed oil used must be of good quality, and great care must be taken in its treatment. The oil is first boiled, much as in the manufacture of paints and varnishes. The process of drying is facilitated by the addition of a small quantity of oxide of lead. The boiled oil, after being allowed to deposit any sediment in it in a settling tank, is pumped to the top of a high building and allowed to flow thence over a number of pieces of light cotton fabric known as "scrim," which hang vertically from iron bars. The air of the building being heated to a temperature of about 100° F., the layer of oil

which adheres to the surface of the scrim becomes oxidized—that is, it solidifies in the course of twenty-four hours.

This operation is repeated daily for six to eight weeks, until a sufficient number of solidified layers of oil are deposited on the cloth, the mass of oxidized oil having then a thickness of half an inch, and being termed "a skin." These skins are then cut down and ground between rollers.

To prepare the linoleum "cement" itself, the ground oil is mixed with resin and kauri gum until the whole mass is homogeneous. The cement and cork dust are then mixed together thoroughly, and if the linoleum is to be plain, the coloring matter necessary is added at this stage. The mixture is then rolled upon a backing of jute burlap, which passes between two cylinders to insure evenness and uniformity of thickness in the coating.

The printing of the pattern is the next step in the process, and there is no very material difference between the method of printing linoleum and that adopted for floor oilcloths.

The latest and most important improvement in linoleum manufacture is the production of mosaic or inlaid goods, in which the colors do not appear on the surface only, but go through to the very back of the cloth.

Several patents have been granted in this country and abroad for methods of obtaining this result. In one process the linoleum cement, having been made to a certain thickness, is cut into separate pieces by dies, and these pieces, shaped and colored to make the pattern desired, are then placed upon a burlap backing. Pressure is then applied to the mass until the canvas and coating are thoroughly united. After drying, the backing is treated with a preparation of resin and other ingredients to make it waterproof, and the goods are then ready for the market.

In another process the linoleum mixture is in the form of a powder, which is dropped upon the jute backing so as to represent the designs and colors essential for the pattern, and the powdered mass is then subjected to heavy pressure from a heated plate until it is completely fused and firmly attached to the backing.

A detailed summary, by states, of the statistics for the combined industry for 1905, is given in Table 6.

OILCLOTH AND LINOLEUM.

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TABLE 6.—OILCLOTH AND LINOLEUM—DETAILED SUMMARY, BY STATES: 1905.

	United States.	Massachusetts.	New Jersey.	All other states. ¹		United States.	Massachusetts.	New Jersey.	All other states.
Number of establishments.....	27	3	10	14	Average number of wage-earners, including pieceworkers employed during each month—Continued.				
Capital, total.....	\$13,803,232	\$287,897	\$5,151,496	\$8,363,839	Children under 16 years—Con.				
Land.....	\$671,304	\$1,250	\$247,795	\$422,259	July.....	90	2	85	3
Buildings.....	\$3,313,415	\$1,250	\$1,463,918	\$1,848,247	August.....	94	2	89	3
Machinery, tools, and implements.....	\$3,218,458	\$41,268	\$1,229,223	\$1,947,967	September.....	93	2	88	3
Cash and sundries.....	\$6,600,055	\$244,129	\$2,210,560	\$4,145,366	October.....	93	2	88	3
Proprietors and firm members.....	12		4	8	November.....	81	2	76	3
Salaried officials, clerks, etc.:.....					December.....	76	2	71	3
Total number.....	217	11	83	123	Miscellaneous expenses, total.....	\$1,369,545	\$24,737	\$558,888	\$781,920
Total salaries.....	\$361,230	\$21,958	\$112,291	\$226,981	Rent of works.....	\$8,530	\$3,751	\$3,100	\$1,679
Officers of corporations—					Taxes.....	\$40,839	\$2,480	\$19,733	\$18,626
Number.....	43	3	23	17	Rent of offices, interest, insurance, and all other sundry expenses not hitherto included.....	\$1,316,153	\$22,506	\$536,055	\$757,592
Salaries.....	\$136,410	\$13,200	\$53,470	\$69,740	Contract work.....	\$4,023			\$4,023
General superintendents, managers, clerks, etc.—					Materials used, aggregate cost.....	\$10,050,009	\$898,985	\$3,666,411	\$5,484,613
Total number.....	174	8	60	106	Principal materials, total cost.....	\$8,928,391	\$804,394	\$3,382,416	\$4,741,581
Total salaries.....	\$224,820	\$8,758	\$58,821	\$157,241	Purchased in raw state.....	\$433,290		\$345,070	\$88,220
Men—					Purchased in partially manufactured form.....	\$8,495,101	\$804,394	\$3,037,346	\$4,653,361
Number.....	161	5	56	100	Fuel.....	\$347,593	\$7,620	\$142,952	\$197,021
Salaries.....	\$219,140	\$7,500	\$57,109	\$154,531	Rent of power and heat.....	\$2,550	\$900		\$1,650
Women—					Mill supplies.....	\$22,704	\$509	\$9,862	\$12,273
Number.....	13	3	11	6	All other materials.....	\$716,214	\$82,776	\$131,181	\$502,257
Salaries.....	\$5,680	\$1,258	\$1,712	\$2,710	Freight.....	\$32,557	\$2,726		\$29,831
Wage-earners, including pieceworkers, and total wages:					Products, total value.....	\$14,792,246	\$1,089,859	\$5,444,396	\$8,257,991
Greatest number employed at any one time during the year.....	4,406	143	1,640	2,623	Oilcloth—				
Least number employed at any one time during the year.....	3,527	111	1,326	2,090	Floor—				
Average number.....	3,883	128	1,464	2,291	Square yards.....	21,387,430		8,387,910	12,999,520
Total wages.....	\$1,943,757	\$60,520	\$701,078	\$1,182,159	Value.....	\$3,554,764		\$1,317,549	\$2,237,245
Men 16 years and over—					Carriage—				
Average number.....	3,734	122	1,378	2,234	Square yards.....	69,185	(2)	(2)	69,185
Wages.....	\$1,905,105	\$58,031	\$682,883	\$1,164,191	Value.....	\$10,895	(2)	(2)	\$10,895
Women 16 years and over—					Enameled—				
Average number.....	59	4	1	54	Square yards.....	11,574,986	(2)	4,249,307	7,325,679
Wages.....	\$19,456	\$2,001	\$285	\$17,170	Value.....	\$1,542,467	(2)	\$590,469	\$951,998
Children under 16 years—					Table—				
Average number.....	90	2	85	3	Square yards.....	38,026,083	(2)	8,164,293	29,861,790
Wages.....	\$19,196	\$488	\$17,910	\$798	Value.....	\$3,540,181	(2)	\$817,406	\$2,722,775
Average number of wage-earners, including pieceworkers, employed during each month:					Upholstery—				
Men 16 years and over—					Square yards.....	937,616	(2)	(2)	937,616
January.....	3,703	116	1,285	2,302	Value.....	\$254,851	(2)	(2)	\$254,851
February.....	3,756	114	1,295	2,347	All other—				
March.....	3,757	120	1,332	2,305	Square yards.....	2,790,393	(2)	(2)	2,790,393
April.....	3,730	118	1,340	2,322	Value.....	\$298,360	(2)	(2)	\$298,360
May.....	3,709	121	1,379	2,209	Linoileum, including cork carpet—				
June.....	3,752	120	1,398	2,234	Square yards.....	14,765,284	(2)	(2)	14,765,284
July.....	3,742	121	1,412	2,209	Value.....	\$4,223,992	(2)	(2)	\$4,223,992
August.....	3,798	121	1,470	2,207	Inlaid linoileum—				
September.....	3,762	122	1,454	2,186	Square yards.....	2,126,178	(2)	(2)	2,126,178
October.....	3,741	123	1,442	2,176	Value.....	\$1,104,808	(2)	(2)	\$1,104,808
November.....	3,643	132	1,346	2,165	All other products.....	\$261,898	(2)	(2)	\$261,898
December.....	3,665	136	1,383	2,146	Power:				
Women 16 years and over—					Number of establishments reporting.....	27	3	10	14
January.....	61	3	1	57	Total horsepower.....	11,294	255	5,734	5,305
February.....	59	3	1	54	Owned—				
March.....	58	3	1	55	Engines—				
April.....	59	3	1	53	Steam—				
May.....	57	3	1	53	Number.....	146	5	59	82
June.....	59	3	1	55	Horsepower.....	9,831	220	4,934	4,677
July.....	62	5	1	56	Gas and gasoline—				
August.....	61	5	1	55	Number.....	2			2
September.....	59	4	1	54	Horsepower.....	47			47
October.....	56	4	1	51	Electric motors—				
November.....	56	6	1	49	Number.....	117		42	75
December.....	61	6	1	54	Horsepower.....	1,182		740	442
Children under 16 years—					Other power, horsepower.....				
January.....	93	2	88	3	Power.....	106		60	46
February.....	92	2	87	3	Rented—				
March.....	91	2	86	3	Electric motors—				
April.....	93	2	88	3	Number.....	8			8
May.....	93	2	88	3	Horsepower.....	93			93
June.....	91	2	86	3	Other kind horsepower.....	35	35		

¹ Includes establishments distributed as follows: Illinois, 2; Maine, 1; Michigan, 1; New York, 5; Ohio, 3; Pennsylvania, 2.² Included in "all other states," to avoid disclosing the operations of individual establishments.

BOOTS AND SHOES

BOOTS AND SHOES.

By ELMORE W. SANDERSON.

The statistics for "boots and shoes, factory product," and "boots and shoes, custom work and repairing," were combined in the reports prior to those of the census of 1880. As it is impossible to make a correct segregation of these statistics, and as the data presented in this report relate entirely to the factory

product, no figures are given for these prior censuses. Reference is made, however, to the condition and growth of the industry during the earlier periods.

Table 1 presents a comparative summary of the statistics of the industry for the censuses from 1880 to 1905, with the percentages of increase for each period.

TABLE 1.—COMPARATIVE SUMMARY, WITH PER CENT OF INCREASE: 1880 TO 1905.

	CENSUS.				PER CENT OF INCREASE.		
	1905	1900	1890	1880	1900 to 1905	1890 to 1900	1880 to 1890
Number of establishments.....	1,316	1,599	2,082	1,959	¹ 17.7	¹ 23.2	6.3
Capital.....	\$122,526,093	\$99,819,233	\$95,282,311	\$42,994,028	22.7	4.8	121.6
Salaried officials, clerks, etc., number.....	8,811	7,779	² 5,643	(³)	13.3	37.9	.....
Salaries.....	\$8,706,682	\$7,669,949	² \$5,707,931	(³)	13.5	34.4	.....
Wage-earners, average number.....	149,924	141,830	133,690	111,152	5.7	6.1	20.3
Total wages.....	\$69,059,680	\$58,440,883	\$60,667,145	\$43,001,438	18.2	¹ 3.7	41.1
Men 16 years and over.....	95,257	90,415	91,406	82,547	5.4	¹ 1.1	10.7
Wages.....	\$50,394,644	\$42,811,430	\$46,905,974	(³)	17.7	¹ 8.7	.....
Women 16 years and over.....	49,535	46,894	39,849	25,122	5.6	17.7	58.6
Wages.....	\$17,681,763	\$14,823,726	\$13,393,611	(³)	19.3	10.7	.....
Children under 16 years.....	5,132	4,521	2,435	3,483	13.5	85.7	¹ 30.1
Wages.....	\$983,273	\$805,727	\$367,560	(³)	22.0	119.2	.....
Miscellaneous expenses.....	\$19,293,634	\$10,669,402	\$9,217,519	(⁴)	80.8	15.8	.....
Cost of materials used.....	\$197,363,495	\$168,632,654	\$118,785,831	\$102,442,442	17.0	42.0	16.0
Value of products.....	\$320,107,458	\$258,969,580	\$220,649,358	\$166,050,354	23.6	17.4	32.9

¹ Decrease.

² Includes proprietors and firm members, with their salaries; number only reported in 1900 and 1905, but not included in this table.

³ Not reported separately.

⁴ Not reported.

There was a decided decrease in the number of establishments between 1900 and 1905, amounting to 283, or 17.7 per cent. The increase in capital during the same period was \$22,706,860, or 22.7 per cent, which is about the percentage of increase in the value of products.

The increase in wages from 1900 to 1905 was distributed as follows: Men's wages, \$7,583,214, or 17.7 per cent; women's wages, \$2,858,037, or 19.3 per cent; and children's wages, \$177,546, or 22 per cent. The percentage of increase for the number of wage-earners, as shown by the table, is very much less than the percentage of increase for value of products. The fact that the proportion of gain in value of products was much larger than that in the number of wage-earners is due principally to the increased use and efficiency of machinery and the improvement in the factory system; also to the large increase in the use of cut stock made by factories that do this kind of work exclusively.

Miscellaneous expenses include amount paid for rent of offices and buildings other than the factory or works, rental of machinery, and for interest, insurance, ordinary repairs of buildings and machinery, advertising, traveling expenses, and all other sundry expenses not elsewhere included. From 1900 to 1905 the increase in these expenses was \$8,624,232, or 80.8 per cent.

The cost of materials in 1880 was reported as \$102,442,442. In 1890 the cost had increased \$16,343,389, or 16 per cent, over the amount shown for 1880. From 1890 to 1900 the cost increased \$49,846,823, or 42 per cent; and from 1900 to 1905 the increase was \$28,730,841, or 17 per cent.

The value of products in 1880 was \$166,050,354. In 1890 it had increased \$54,599,004, or 32.9 per cent. From 1890 to 1900 the increase was \$38,320,222, or 17.4 per cent, and from 1900 to 1905 the increase was \$61,137,878, or 23.6 per cent. It is interesting to note that while the percentage of increase for the cost of materials and that for the value of products

do not correspond for any period, the percentage of increase for the entire period covered by the table—1880 to 1905—was practically the same. The cost of materials increased \$94,921,053, or 92.7 per cent, and value of products, \$154,057,104, or 92.8 per cent.

Table 2 gives the number of establishments doing work for others exclusively and the number of shoe manufacturing establishments not engaged in such work at the censuses of 1890, 1900, and 1905, showing the percentages of decrease for each period.

TABLE 2.—Number of establishments, by class of work, with per cent of decrease: 1890 to 1905.

	CENSUS.			PER CENT OF DECREASE.	
	1905	1900	1890	1900 to 1905	1890 to 1900
Total.....	1,316	1,599	2,082	17.7	23.2
Establishments doing work for others exclusively.....	59	78	138	24.4	43.5
Shoe factories.....	1,257	1,521	1,944	17.4	21.8

At the census of 1890 the data for establishments doing work for others exclusively were not exact, but it is known that at least 138 such shops were included in the number of establishments reported for that year. Of the 59 establishments doing such work at the census of 1905, 56 were located in the state of Massachusetts. Table 3 gives the kind and value of work reported by such establishments in 1905.

TABLE 3.—Number of establishments doing work for others, and kind and value of work done: 1905.

KIND OF WORK DONE.	Number of establishments.	Value of work done.
Total.....	59	\$708,749
Stitching.....	19	257,121
Making buttonholes.....	9	103,084
Fitting.....	4	46,200
Making crimped vamps.....	3	11,166
Bottoming.....	2	84,420
Heeling.....	2	
Making counters.....	1	
Embossing.....	1	
Finishing.....	1	25,763
Lasting.....	1	
Tacking.....	1	
Two or more of above.....	15	180,995

Table 16 gives the total value of work done for others as \$792,116. The difference, \$83,367, represents the value of work done for others by regular manufacturers.

The decrease in the number of shops doing work for others accounts for but a part of the decrease in the total number of establishments. A comparison of the reports for 1905 with those for 1900 shows that many establishments have gone out of existence, while others have increased largely their equipment and their output.

This concentration into large establishments is shown by the investment of capital per establishment, increasing from \$62,426 in 1900 to \$93,105 in 1905; the number of wage-earners, from 89 to 114; the amount paid in wages, from \$36,548 to \$52,477; and the value of products, from \$161,957 to \$243,243.

The value of products of many of the establishments is also an illustration of this concentration. At the census of 1905 there were 4 establishments with products of over \$5,000,000 each, 58 with a value of products of from \$1,000,000 to \$5,000,000 each, and 125 with a value of products of from \$500,000 to \$1,000,000 each.

Table 4 shows the amount of capital invested in land, buildings, machinery, tools, and implements, and cash and sundries at the censuses of 1890, 1900, and 1905, with the percentage that each item formed of the total capital at the three censuses.

TABLE 4.—Capital, with proportion each class forms of total: 1890 to 1905.

	1905		1900		1890	
	Amount.	Per cent of total.	Amount.	Per cent of total.	Amount.	Per cent of total.
Total.....	\$122,526,093	100.0	\$99,819,233	100.0	\$95,282,311	100.0
Land.....	2,572,107	2.1	2,153,426	2.2	2,190,160	2.3
Buildings.....	8,690,331	7.1	6,858,014	6.9	5,463,879	5.7
Machinery, tools, and implements.....	18,964,510	15.5	16,807,305	16.8	13,873,364	14.6
Cash and sundries.....	92,299,145	75.3	74,000,488	74.1	73,754,908	77.4

While each item of capital for 1905 shows a substantially like ratio of increase over 1900 and 1890, the percentage of the items to the totals for each census period was practically the same. The proportion of the total capital reported in 1905 as invested in land was slightly less and in buildings slightly more than in 1900 and 1890; in machinery, tools, and implements the proportion was less in 1905 than in 1900, but more than in 1890; in cash and sundries the proportion was more in 1905 than in 1900, but less than in 1890.

Table 5 shows the total number of employees and the total amount paid them; the number and proportion of salaried employees and wage-earners, the amounts paid them, and the proportion paid to each class; the average number of each class of employees and the average amount of salaries and wages per establishment for 1900 and 1905, with the percentage of increase for each item.

TABLE 5.—Employees, salaries, and wages, with per cent of increase: 1905 and 1900.

	1905	1900	Per cent of increase.
Total number of all employees.....	158,735	149,609	6.1
Salaried employees.....	8,811	7,779	13.3
Per cent of total.....	5.6	5.2	
Wage-earners.....	149,924	141,830	5.7
Per cent of total.....	94.4	94.8	
Total amount paid all employees.....	\$77,766,362	\$66,110,832	17.6
Salaries.....	\$8,706,082	\$7,669,949	13.5
Per cent of total.....	11.2	11.6	
Wages.....	\$69,059,680	\$58,440,883	18.2
Per cent of total.....	88.8	88.4	
Average number of salaried employees per establishment.....	7	5	40.0
Average number of wage-earners per establishment.....	114	89	28.1
Average amount paid for salaries per establishment.....	\$6,616	\$4,797	37.9
Average amount paid for wages per establishment.....	\$52,477	\$36,548	43.6

From 1900 to 1905 the number of all employees reported increased 9,126, or 6.1 per cent, and the total amount paid for salaries and wages increased \$11,655,530, or 17.6 per cent. The average number of salaried employees per establishment increased 2, or 40 per cent, and the average amount paid in salaries per establishment increased \$1,819, or 37.9 per cent. The proportion of salaried employees was slightly greater for 1905 than for 1900, but the proportion of salaries was a little less. The average number of wage-earners per establishment increased 25, and the average amount paid for wages per establishment increased \$15,929. At both censuses the wage-earners formed over 94 per cent of all the employees and received over 88 per cent of the amount paid in salaries and wages.

Table 6 shows the amounts reported in 1900 and 1905 for the various items of miscellaneous expenses, and gives the percentages of increase for the period.

TABLE 6.—*Miscellaneous expenses, with per cent of increase: 1905 and 1900.*

	1905	1900	Per cent of increase.
Total.....	\$19,293,634	\$10,669,402	80.8
Rent of works.....	1,147,759	1,000,689	14.7
Taxes.....	425,826	379,926	12.1
Rent of offices, interest, insurance, advertising, royalties, etc.....	16,248,069	7,536,839	115.6
Contract work.....	1,471,980	1,751,948	116.0

¹ Decrease.

There is a slight increase in amount paid for rent of works and taxes and a small decrease in amount paid for contract work, but the increase in amount paid for rent of offices, etc., or all other miscellaneous expenses, is large. This is accounted for partly by the fact that at the 1905 census the amount paid for machines leased or held under royalties was ascertained for the first time and the total, \$3,343,425, included with these items. It does not appear under what head this expense was reported at prior censuses. A further reason for the increase is the amount spent for advertising.

Table 7 shows for 1905 the number of establishments reporting the different kinds of materials, with the quantity and cost of each kind of material used; the cost of linings and trimmings and findings, and the amount paid for fuel, rent of power and heat, mill supplies, freight, and all other materials.

The number of establishments given in this table is not the number of distinct establishments, but the number reporting the different classes of materials. Consequently some establishments are counted several times. The number using purchased cut soles, counters, taps, heels, etc., was the largest, 908; of these establishments, 419 used these materials to the exclusion of uncut sole leather. The number using sole leather in the side was 678; of these, 162 did not use cut soles, etc., or heads, bellies, and shoulders. The

latter class of materials was used by 425 establishments, but in only 26 exclusively.

TABLE 7.—*Materials used, by kind, quantity, and cost, and number of establishments reporting each kind: 1905.*

KIND.	Number of establishments reporting.	Unit of measure.	Quantity.	Cost of materials used.
Materials used, total cost.....				\$197,363,495
Sole leather, in the side.....	678	Pounds.....	162,631,578	36,860,980
Sole leather (heads, bellies, shoulders, etc.).	425	Pounds.....	42,510,899	7,374,070
Split leather, finished.....	157	Pounds.....	10,749,526	2,047,504
Rolled splits.....	89	Pounds.....	3,890,791	632,429
Calf and kip skins.....	232	Pounds.....	4,240,190	2,939,268
Grain and other side leather.....	399	Square feet.....	89,610,877	11,805,645
Calfskins (russet, ooze, kangaroo, dongola calf, etc.).	592	Square feet.....	91,290,110	16,209,143
Patent and enamel leather.....	692	Square feet.....	47,720,221	12,053,512
Goatskins.....	759	Square feet.....	197,044,004	30,398,403
Sheep leather used for uppers.....	453	Square feet.....	36,473,154	2,879,270
All other upper leather.....	459	Square feet.....	73,012,064	12,587,285
Material other than leather used for uppers.....	210			1,956,146
Linings and trimmings, all kinds.....				10,561,367
Cut soles, counters, taps, heels, etc., purchased.....	908			24,143,824
Findings, purchased.....				13,080,280
Fuel, rent of power and heat, mill supplies, freight, and all other materials.....				11,834,369

Calfskins (russet, ooze, kangaroo, dongola calf, etc.) were used by 592 establishments, of which 313 did not use calf and kip skins. Calf and kip skins were used by 232 establishments, but only 38 used them exclusively. Of 157 establishments using split leather, finished, 86 did not use rolled splits; and of 89 using rolled splits, only 6 did not use split leather, finished.

There are two principal classes of leather used in the manufacture of boots and shoes: Leather from which soles, counters, taps, heels, etc., are made, known as *sole* leather, and leather from which vamps, quarters, etc., are made, known as *upper* leather.

The cost of sole leather in the side, heads, bellies, shoulders, etc., as reported at the census of 1905 was \$44,235,050. This amount, added to the \$24,143,824 paid for cut soles, counters, taps, heels, etc., purchased, makes the expenditure for sole leather \$68,378,874, or 34.6 per cent, of the total cost of materials.

Upper leather cost \$91,552,459, or 46.4 per cent, of the total cost of materials, and all upper material, including material other than leather, \$93,508,605, or 47.4 per cent; linings, trimmings, and findings, \$23,641,647, or 12 per cent; and fuel, rent of power and heat, mill supplies, freight, and all other materials, \$11,834,369, or 6 per cent.

A noteworthy item in the table is the large amount paid for cut soles, etc., the increase for 1905 compared with 1900 being 40 per cent as against an increase in the cost of uncut sole leather of 12.9 per cent. Included in the cost of cut soles, however, is the cost of counters, parts of heels, and shank pieces made of leather board or fiber, a composition of leather scraps, rags, paper, etc. Except that some manufacturers use the shank pieces in high grade shoes, claiming their

superiority, this imitation sole leather is found in cheap shoes only. Many manufacturers find it of advantage to purchase cut soles, claiming they can get the grade and weight they want, save one operation, and not have on their hands sole leather they do not need.

Of upper leather, goatskin was the most largely reported in 1905. As a result of the success attending the tanning of such skins by the "chrome" process there has been put on the market a glazed kid that gives the greatest satisfaction to manufacturers. Its cost was 33.2 per cent of the cost of all upper leather. Calfskin, patent and enamel, and grain leather were also used to a considerable extent, but sheep and split leather were used in comparatively small quantities. A large amount is included under "all other upper leather," mainly because of the inability of some manufacturers to segregate the kinds and quantities of leather purchased. "Materials other than leather used for uppers" was separately considered at this census for the first time, and 210 establishments reported an expenditure of \$1,956,146 for such materials.

Table 8 shows the number of establishments reporting the different kinds of products and the quantity and value of each kind for 1900 and 1905. The number of establishments is the number reporting the various kinds of products and not the number of distinct establishments. Therefore some establishments are included several times.

TABLE 8.—*Products, by kind, quantity, and value, with number of establishments reporting each kind, and per cent of increase: 1905 and 1900.*

KIND.	NUMBER OF ESTABLISHMENTS REPORTING.		VALUE.		
	1905	1900	1905	1900	Per cent of increase.
Products, total value.			\$320,107,458	\$258,969,580	23.6
Boots, shoes, and slippers:					
Total number of pairs.			242,110,035	217,965,419	11.1
Total value.			\$315,987,387	\$255,720,266	23.6
Men's boots and shoes	483	560			
Number of pairs.			83,434,322	67,742,839	23.2
Value.			\$142,038,632	\$108,105,938	31.4
Boys' and youths' boots and shoes.	299	388			
Number of pairs.			21,717,236	21,030,479	3.3
Value.			\$24,301,298	\$20,739,297	17.2
Women's boots and shoes	464	588			
Number of pairs.			69,470,876	64,972,653	6.9
Value.			\$98,262,016	\$81,804,303	20.1
Misses' and children's boots and shoes.	377	551			
Number of pairs.			41,416,967	41,843,202	1.0
Value.			\$34,056,919	\$30,094,611	13.2
Men's, boys', and youths' slippers.	108	135			
Number of pairs.			4,403,097	4,446,965	1.0
Value.			\$3,464,561	\$2,800,213	23.7
Women's, misses', and children's slippers.	236	278			
Number of pairs.			13,115,194	12,645,876	3.7
Value.			\$10,532,271	\$10,134,393	3.9
All other kinds.	157	126			
Number of pairs.			8,552,343	5,283,405	61.2
Value.			\$3,331,690	\$2,041,511	63.2
All other products.	122	161			
Value.			\$3,327,955	\$2,175,738	53.0
Amount received for work done for others.	89	148			
Value.			\$792,116	\$1,073,576	26.2

¹ Decrease.

The reports in 1905 showed that 24,144,616 more pairs of boots, shoes, and slippers were made in the United States than in 1900, a gain of 11.1 per cent; the value increased \$60,267,121, or 23.6 per cent. The greatest increase was in the manufacture of men's boots and shoes, the increase being 15,691,483 pairs, or 23.2 per cent, and \$33,932,694 in value, or 31.4 per cent. Boys' and youths' shoes increased but 686,757 pairs, or 3.3 per cent, while the value increased \$3,562,001, or 17.2 per cent. The number of pairs of women's shoes manufactured increased 4,498,223, or 6.9 per cent, and the value \$16,457,713, or 20.1 per cent. There was a decrease in number of misses' and children's shoes manufactured of 426,235 pairs, or 1 per cent, but an increase in value of \$3,962,308, or 13.2 per cent. The manufacture of slippers was increased to the extent of 425,450 pairs, or 2.5 per cent, and \$1,062,226 in value, or 8.2 per cent. For "all other kinds," which includes infants' shoes, moccasins, athletic and bathing shoes, etc., an increase of 3,268,938 pairs, or 61.9 per cent, and \$1,290,179 in value, or 63.2 per cent, is shown. Instances of decreases and small increases in quantity which appear in the table are attributed to slight changes in classification, which resulted in swelling the total of "all other kinds" in 1905, thus causing the large increase in that item.

"All other products" included overgaiters and leggings, leather clothing, harness, collars, clogs, etc., and the increase since 1900 was \$1,152,217, or 53 per cent.

"Amount received for work done for others" decreased \$281,460, or 26.2 per cent.

Many establishments manufactured one kind of product exclusively. The following statement gives the number of such establishments in 1905:

Men's boots and shoes.	198
Boys' and youths' boots and shoes.	29
Women's boots and shoes.	171
Misses' and children's boots and shoes.	120
Men's, boys', and youths' slippers.	11
Women's, misses', and children's slippers.	92
All other kinds.	68
Custom work.	59

Table 9 is a comparative summary of the statistics of the industry for the censuses from 1880 to 1905, by states and geographic divisions. It shows also the relative rank of the various states with regard to capital and value of products, and gives the percentage of increase for each of these two items.

The New England states have led all the other geographic divisions in the production of boots and shoes ever since the inception of the industry in this country. In 1905 this division reported 51.4 per cent of the total capital reported for the boot and shoe industry in the United States, 53.1 per cent of the average number of wage-earners, 58.6 per cent of the total wages, and 56.6 per cent of the total value of products. Thus considerably more than half the country's activity in this industry was confined to New England.

TABLE 9.—COMPARATIVE SUMMARY, BY STATES ARRANGED BY GEOGRAPHIC DIVISIONS: 1880 TO 1905.

STATE.	Census.	Number of establishments.	CAPITAL.			WAGE-EARNERS AND WAGES.		Miscellaneous expenses.	Cost of materials used.	PRODUCTS.		
			Rank.	Total.	Per cent of increase.	Average number.	Wages.			Rank.	Value.	Per cent of increase.
United States.....	1905	1,316	.....	\$122,526,093	22.7	149,924	\$69,059,680	\$19,293,634	\$197,363,495	.....	\$320,107,458	23.6
	1900	1,599	.....	99,819,233	4.8	141,830	58,440,883	10,669,402	168,632,654	.....	258,969,580	17.4
	1890	2,082	.....	95,282,311	121.6	133,690	60,667,145	9,217,519	118,785,831	.....	220,649,358	32.9
	1880	1,959	.....	42,994,028	.....	111,152	43,001,438	.....	102,442,442	.....	166,050,354	.....
New England states.....	1905	614	.....	63,015,461	20.8	79,537	40,462,967	9,748,391	113,523,764	.....	181,023,946	16.5
	1900	781	.....	52,174,549	14.1	78,167	35,810,931	5,853,451	102,416,763	.....	155,367,997	10.2
	1890	1,204	.....	54,889,199	118.6	82,901	39,140,122	6,336,017	77,685,628	.....	140,932,656	26.6
	1880	1,125	.....	24,882,333	.....	71,517	28,574,114	.....	70,001,272	.....	111,364,440	.....
Maine.....	1905	50	7	4,450,939	113.5	5,775	2,622,519	528,101	8,301,861	7	12,351,293	0.5
	1900	48	6	5,148,278	7.1	6,432	2,664,672	402,027	8,366,747	6	12,295,847	19.0
	1890	53	4	4,804,946	251.0	6,382	2,868,500	397,394	5,800,682	5	10,335,342	77.5
	1880	52	6	1,869,000	.....	3,919	1,335,168	.....	3,880,446	5	5,823,541	.....
New Hampshire.....	1905	50	5	7,931,070	12.4	10,415	4,377,351	702,798	15,529,993	5	22,425,700	14.2
	1900	67	3	8,123,481	105.3	12,007	4,971,954	453,706	16,569,725	3	23,405,558	95.3
	1890	64	5	3,956,774	133.3	7,912	3,337,167	256,643	6,749,322	3	11,986,003	65.8
	1880	59	5	1,696,200	.....	4,434	1,792,832	.....	4,751,968	4	7,230,804	.....
Vermont.....	1905	3	17	518,383	8.4	225	98,417	45,482	411,127	20	675,772	114.8
	1900	6	19	478,184	37.1	355	128,771	25,970	561,786	18	792,707	49.7
	1890	7	18	348,827	296.4	227	94,766	32,450	346,557	19	529,486	167.1
	1880	6	18	88,000	.....	101	41,950	.....	126,688	19	198,200	.....
Massachusetts.....	1905	502	1	49,529,728	31.8	62,633	33,160,667	8,340,835	88,493,009	1	144,291,426	23.2
	1900	640	1	37,577,630	115.7	58,645	27,745,820	4,826,896	75,751,964	1	117,115,243	0.6
	1890	1,057	1	44,567,702	111.2	67,374	32,379,899	5,568,233	63,928,182	1	116,387,900	21.4
	1880	982	1	21,098,133	.....	61,651	24,875,106	.....	59,906,773	1	95,900,510	.....
Rhode Island ²	1900	5	25	57,358	106.0	9	1,888	27,480	179,986	23	241,278	51.9
	1890	3	23	27,850	.....	11	4,084	27,631	110,745	22	158,800	.....
Connecticut.....	1905	9	16	585,341	125.9	489	204,013	131,175	787,774	16	1,279,755	115.7
	1900	15	14	789,618	15.6	719	297,826	117,372	986,555	14	1,517,364	11.2
	1890	20	15	683,100	8.3	995	455,706	53,666	750,140	14	1,535,125	130.6
	1880	26	11	631,000	.....	1,412	529,058	.....	1,335,397	11	2,211,385	.....
Middle Atlantic states.....	1905	372	.....	24,773,414	10.1	30,277	12,802,835	3,880,093	32,871,600	.....	56,733,609	20.9
	1900	472	.....	22,406,583	7.0	30,257	11,262,119	2,254,049	28,709,063	.....	46,928,760	9.6
	1890	552	.....	21,020,753	84.2	29,321	12,390,279	1,284,249	21,536,179	.....	42,805,224	20.7
	1880	540	.....	11,410,222	.....	26,373	9,596,980	.....	20,982,074	.....	35,471,510	.....
New York.....	1905	223	2	14,106,058	17.7	16,556	7,582,896	2,256,546	19,792,932	2	34,137,049	33.4
	1900	223	2	11,983,239	0.3	15,796	6,138,653	1,251,902	15,611,386	2	25,585,631	8.1
	1890	257	2	11,950,891	91.9	15,361	6,629,641	812,099	12,383,851	2	23,661,204	24.7
	1880	272	2	6,227,537	.....	13,414	4,902,132	.....	11,502,251	2	18,979,259	.....
New Jersey.....	1905	51	10	3,038,877	13.6	4,192	1,753,924	541,174	3,841,929	9	6,977,300	(3)
	1900	84	9	3,153,255	12.2	4,421	1,723,159	391,043	4,210,472	9	6,978,043	13.8
	1890	109	9	2,811,098	191.5	5,162	2,206,652	129,513	3,417,180	8	7,255,409	54.7
	1880	89	9	964,245	.....	3,318	1,278,269	.....	2,837,861	6	4,689,286	.....
Pennsylvania.....	1905	119	6	7,197,959	4.9	8,878	3,230,443	1,014,272	8,701,463	6	14,607,867	10.4
	1900	146	5	6,860,480	27.2	9,144	3,111,113	572,624	8,210,846	5	13,235,933	27.8
	1890	153	3	5,394,799	48.7	7,616	3,094,582	311,684	5,212,096	4	10,354,850	8.0
	1880	145	3	3,627,840	.....	7,845	2,820,976	.....	5,425,844	3	9,590,002	.....
Maryland.....	1905	14	18	430,520	113.8	651	235,572	68,101	535,276	17	1,011,393	110.4
	1900	19	18	499,609	142.2	896	289,194	38,480	676,359	16	1,129,153	126.4
	1890	28	14	863,965	46.3	1,182	459,404	30,953	723,052	15	1,533,761	130.7
	1880	34	12	590,600	.....	1,796	595,603	.....	1,216,118	10	2,212,963	.....
Southern states.....	1905	48	.....	2,495,327	90.0	3,363	897,280	402,449	4,712,697	.....	6,663,800	110.6
	1900	32	.....	1,313,293	8.6	2,047	482,049	129,414	2,366,981	.....	3,163,577	7.3
	1890	42	.....	1,209,532	239.1	1,451	587,433	133,482	1,637,858	.....	2,947,915	153.4
	1880	36	.....	356,700	.....	980	288,836	.....	687,758	.....	1,163,493	.....
Virginia.....	1905	6	14	975,482	52.1	1,738	369,138	72,604	1,915,038	13	2,627,244	80.9
	1900	5	15	641,166	27.8	1,153	206,119	35,122	1,159,969	15	1,452,480	13.6
	1890	7	16	501,661	725.1	252	115,414	83,682	874,564	16	1,279,069	582.1
	1880	5	20	60,800	.....	221	30,381	.....	116,893	21	187,520	.....
North Carolina.....	1905	7	27	86,220	128.7	80	24,679	9,354	116,521	27	185,635	152.6
	1900	3	27	37,700	168.1	40	14,107	1,058	53,297	26	73,493	152.9
	1890	4	21	118,000	247.1	95	26,720	3,473	76,670	23	155,900	44.9
	1880	5	23	34,000	.....	108	23,900	.....	65,000	23	107,600	.....
Georgia.....	1905	7	26	95,361	5.1	239	66,515	10,806	264,710	23	372,983	7.7
	1900	5	23	90,700	451.0	250	66,000	7,859	255,695	22	346,259	1,767.4
	1890	3	24	16,461	160.6	22	4,104	1,034	7,917	24	18,542	179.3
	1880	4	22	41,800	.....	38	11,445	.....	64,241	24	89,725	.....
Kentucky.....	1905	9	15	756,468	197.4	659	200,121	218,998	1,360,487	14	1,929,939	206.2
	1900	7	21	254,382	19.2	207	50,819	64,313	456,018	21	630,358	19.8
	1890	11	20	280,166	42.1	296	112,295	33,640	266,210	20	526,387	19.0
	1880	15	17	197,100	.....	472	159,587	.....	339,433	16	578,732	.....
Tennessee ⁴	1905	4	23	173,766	.....	225	78,319	53,980	639,664	19	836,955	.....
	1880	3	25	6,000	.....	26	9,905	.....	17,191	25	35,826	.....
Louisiana.....	1905	10	20	351,948	21.6	370	136,786	29,464	377,716	21	620,014	16.2
	1900	12	20	289,345	11.3	397	145,004	21,062	442,002	20	660,987	131.7
	1890	17	19	293,244	1,625.0	786	328,900	11,653	412,497	17	968,017	489.9
	1880	4	24	17,000	.....	115	53,618	.....	85,000	22	164,090	.....
Texas ⁵	1905	5	28	56,082	.....	43	21,722	7,243	38,561	28	91,030	.....

¹ Decrease.

² Included in "all other states" in 1905. Not reported in 1880.

³ Less than one-tenth of 1 per cent.

⁴ Included in "all other states" in 1890 and 1900.

⁵ Included in "all other states" in 1890. Not reported in 1880 and 1900.

TABLE 9.—COMPARATIVE SUMMARY, BY STATES, ARRANGED BY GEOGRAPHIC DIVISIONS: 1880 TO 1905.—Cont'd.

STATE.	Census.	Num- ber of estab- lish- ments.	CAPITAL.			WAGE-EARNERS AND WAGES.		Miscella- neous expenses.	Cost of materials used.	PRODUCTS.		
			Rank.	Total.	Per cent of in- crease.	Average number.	Wages.			Rank.	Value.	Per cent of in- crease.
North Central states.....	1905	245	.....	\$30,707,691	39.3	35,753	\$14,377,281	\$5,153,922	\$44,994,172	.....	\$73,451,473	45.2
	1900	270	.....	22,048,211	32.9	29,974	10,289,065	2,304,536	33,300,952	.....	50,596,003	69.1
	1890	212	.....	16,592,691	221.0	17,360	7,281,303	1,306,036	16,076,758	.....	29,912,448	114.6
	1880	160	.....	5,169,040	.....	9,388	3,366,085	.....	8,475,479	.....	13,936,600	.....
Ohio.....	1905	62	3	10,230,015	35.5	13,890	5,222,723	2,277,107	14,557,515	3	25,140,220	40.3
	1900	81	4	7,549,142	137.7	12,718	3,989,744	637,537	11,074,008	4	17,920,854	111.1
	1890	63	8	3,176,318	175.2	5,743	2,303,393	257,369	4,480,206	7	8,489,728	103.7
	1880	51	7	1,154,200	.....	3,204	1,089,116	.....	2,498,178	7	4,167,476	.....
Indiana.....	1905	4	21	306,309	143.5	226	70,610	40,135	299,612	22	459,700	146.8
	1900	6	16	542,224	452.9	610	151,455	23,106	631,856	17	864,090	380.2
	1890	6	22	98,065	156.7	173	57,079	3,768	90,157	21	179,936	162.3
	1880	12	16	226,500	.....	341	111,465	.....	296,448	17	476,845	.....
Illinois.....	1905	44	8	3,656,671	8.3	3,947	1,865,319	580,076	5,656,109	8	9,026,238	13.7
	1900	54	8	3,375,482	110.7	4,461	1,959,959	347,774	6,334,625	8	9,375,842	7.1
	1890	56	6	3,781,476	118.7	3,992	1,896,998	388,001	4,931,986	6	8,756,824	175.1
	1880	33	4	1,729,200	.....	2,060	755,769	.....	1,834,999	9	3,183,026	.....
Michigan.....	1905	23	12	1,702,398	49.9	1,723	681,362	370,011	2,016,058	12	3,531,028	84.4
	1900	13	13	1,135,961	16.8	1,117	386,074	200,504	1,163,863	12	1,915,179	17.3
	1890	12	13	972,534	183.1	1,309	495,202	89,088	1,209,387	12	2,065,631	69.8
	1880	10	15	343,500	.....	783	340,172	.....	736,184	14	1,216,255	.....
Wisconsin.....	1905	53	9	3,577,649	44.6	3,226	1,247,765	474,472	4,220,098	10	6,513,568	35.9
	1900	40	10	2,473,626	15.6	2,507	821,403	279,913	3,170,921	10	4,791,684	61.2
	1890	32	10	2,621,606	377.7	2,036	774,163	146,345	1,466,557	11	2,972,233	71.1
	1880	20	13	548,800	.....	1,177	381,732	.....	1,147,140	13	1,736,773	.....
Minnesota.....	1905	17	11	2,432,365	8.7	1,714	718,600	382,056	2,631,689	11	4,169,732	15.3
	1900	16	11	2,237,540	24.7	2,025	719,231	151,042	2,378,156	11	3,615,801	77.9
	1890	8	11	1,794,711	287.6	1,099	524,978	99,962	1,090,722	13	2,032,814	118.5
	1880	5	14	463,000	.....	402	207,218	.....	571,644	15	930,192	.....
Iowa.....	1905	5	19	419,280	117.3	478	185,663	50,135	521,590	18	853,990	8.6
	1900	7	17	506,757	16.5	566	191,783	18,718	507,492	19	786,141	36.9
	1890	0	17	435,066	612.8	292	110,100	16,309	286,716	18	574,378	136.3
	1880	3	19	61,040	.....	139	32,950	.....	166,090	18	243,040	.....
Missouri.....	1905	34	4	8,242,304	97.0	10,428	4,335,005	967,157	14,930,005	4	23,493,552	108.8
	1900	50	7	4,183,979	12.7	5,915	2,052,114	643,942	7,993,026	7	11,253,202	132.5
	1890	29	7	3,712,915	477.6	2,716	1,119,390	305,194	2,521,027	9	4,841,004	144.1
	1880	26	10	642,800	.....	1,282	447,663	.....	1,224,796	12	1,982,993	.....
Nebraska ²	1905	3	24	140,700	223.4	121	50,234	12,773	161,496	24	263,450	259.9
	1900	3	26	43,500	.....	55	17,302	2,000	47,005	27	73,210	.....
Western states.....	1905	33	.....	1,486,580	2.3	940	495,345	102,459	1,220,389	.....	2,154,218	14.0
	1900	36	.....	1,453,084	116.5	1,209	540,946	84,327	1,356,829	.....	2,242,920	133.9
	1890	56	.....	1,740,175	64.0	2,280	1,109,419	141,266	1,524,272	.....	3,395,043	111.6
	1880	89	.....	1,061,233	.....	2,685	1,120,158	.....	2,130,647	.....	3,839,220	.....
Utah ³	1905	4	25	130,863	5.3	109	46,601	2,304	111,883	26	196,211	113.2
	1900	3	22	124,267	.....	140	52,558	5,017	156,046	24	225,986	19.1
	1880	8	21	60,050	.....	186	55,220	.....	108,160	20	189,669	.....
Washington ²	1905	5	22	182,511	156.8	106	46,978	28,396	121,403	25	225,738	35.6
	1900	3	24	71,071	.....	75	31,461	14,937	102,599	25	166,423	.....
Oregon ⁴	1905	3	29	33,756	.....	25	17,262	6,363	25,934	29	54,601	.....
California.....	1905	21	13	1,139,450	19.4	700	384,504	65,396	961,169	15	1,677,668	19.3
	1900	30	12	1,257,746	127.7	994	456,927	64,373	1,098,184	13	1,850,511	145.5
	1890	56	12	1,740,175	73.8	2,280	1,109,419	141,266	1,524,272	10	3,395,043	17.0
	1880	81	8	1,001,183	.....	2,499	1,064,938	.....	2,022,487	8	3,649,551	.....
All other states.....	⁵ 1905	4	.....	47,620	185.7	54	23,972	6,320	40,873	.....	80,412	188.0
	⁶ 1900	8	.....	333,513	1.1	176	55,773	43,625	482,066	.....	670,323	2.2
	⁷ 1890	16	.....	329,961	188.2	377	158,589	16,469	325,136	.....	656,072	138.5
	⁸ 1880	9	.....	114,500	.....	209	55,265	.....	165,212	.....	275,091	.....

¹ Decrease.² Included in "all other states" in 1890. Not reported in 1880.³ Included in "all other states" in 1890.⁴ Included in "all other states" in 1880, 1890, and 1900.⁵ Includes establishments distributed as follows: Colorado, 1; Delaware, 1; Indian Territory, 1; Rhode Island, 1.⁶ Includes establishments distributed as follows: Alabama, 1; Colorado, 1; Delaware, 1; Kansas, 1; Oregon, 2; Tennessee, 2.⁷ Includes establishments distributed as follows: Alabama, 1; Delaware, 1; Kansas, 2; Nebraska, 1; Oregon, 1; South Carolina, 2; Tennessee, 2; Texas, 3; Utah, 2; Washington, 1.⁸ Includes establishments distributed as follows: Colorado, 1; Idaho, 1; Kansas, 3; Mississippi, 2; Oregon, 1; West Virginia, 1.

The North Central and Middle Atlantic states contained almost the entire remainder of the industry. Of the totals for the country, the North Central states reported 25.1 per cent of the capital, 23.9 per cent of the average number of wage-earners, 20.8 per cent of the wages, and 22.9 per cent of the value of products; the Middle Atlantic states reported 20.2 per cent of the capital, 20.2 per cent of the average number of wage-

earners, 18.5 per cent of the wages, and 17.7 per cent of the value of products.

Thus of the totals for the country in 1905 these three groups reported 96.7 per cent of the capital, 97.2 per cent of the average number of wage-earners, 97.9 per cent of the wages, and 97.2 per cent of the value of products, leaving a very small part of the manufacture of boots and shoes for the Southern and Western states.

Although New England retained a very substantial lead in the industry in 1905, the portion of the total capital and value of products reported from this division being more than twice as great as that from either the North Central or Middle Atlantic states, an examination of the table shows that at every census since 1880 New England's proportionate share of the industry has decreased. This decline has been very small, however, and for the entire period of twenty-five years the decrease has been only from 57.9 per cent of the total capital and 67.1 per cent of the total value of products reported for the whole country in 1880 to 51.4 and 56.6 per cent, respectively, in 1905. The Middle Atlantic states have likewise shown a decline in this respect, except that during the period from 1890 to 1900 there was a slight increase in the proportion of capital. This falling off in the proportion of the principal items of the industry reported from the eastern part of the country is due almost entirely to the enormous gains made in the North Central division. The part of the entire capital and value of products of the industry that has been reported from this division has increased at every census since 1880, rising from 12 per cent of the total capital and 8.4 per cent of the total value of products in 1880 to 25.1 per cent and 22.9 per cent, respectively, in 1905, and placing this division second only to New England at the census of 1905 in regard to the proportion that the capital and value of products reported formed of the corresponding totals for the United States.

In 1905, as compared with 1900, in New England the capital increased \$10,840,912, or 20.8 per cent, and the value of products, \$25,655,949, or 16.5 per cent. In the Middle Atlantic states for the same period the increase in capital was \$2,276,831, or 10.1 per cent, and in value of products, \$9,804,849, or 20.9 per cent. In the North Central states increases of \$8,659,480, or 39.3 per cent, for capital and \$22,855,470, or 45.2 per cent, for value of products were reported.

The increases shown for the North Central states approach, but by no means equal, those of New England in absolute amounts. During the previous decade, 1890 to 1900, there seems to have been a considerable decline in the rate of growth of the industry all over the country. This was especially noticeable in New England and the Middle Atlantic states, but was not very serious in the North Central states. As a consequence, in respect to absolute gains in capital and value of products, New England was exceeded in 1900 by the North Central states, but recovered its lead in this respect in 1905.

Of the states shown separately at the census of 1880, California, Connecticut, and Maryland have reported a considerable decrease in the value of products at every subsequent census. Indiana shows a large decrease from 1900 and the total value of products reported in 1905 was less than in 1880. For one or more censuses

after 1880, 5 states reported an increase in production but since have decreased in value of products. These are Illinois, Louisiana, New Jersey, New Hampshire, and Vermont. Of the states which are shown separately for 1905, Nebraska, Oregon, Texas, and Washington either did not report production in 1880 or had so few factories as to be included "in all other states." Minnesota, New York, Pennsylvania, Virginia, Missouri, and Ohio are the only states to report increases in both capital and value of products at every census since 1880.

Between 1900 and 1905 there was considerable variation in the growth of the industry in the several states. Massachusetts retained first rank, which position it has occupied since the statistics of the industry were first taken. The proportions that the totals of the principal items for this state formed of the corresponding totals for the United States are shown in the following statement:

	PER CENT OF TOTAL.	
	1905	1900
Capital	40.4	37.6
Number of wage-earners	41.8	41.3
Wages	48.0	47.5
Value of products	45.1	45.2

All of the proportions except that for value of products show a slight increase in 1905 as compared with 1900. Thus, despite great gains made in many of the other states, especially those of the North Central states, Massachusetts retained its leadership in the industry. This is in strong contrast to the New England states as a whole, where, as before stated, the proportions of the principal items to the corresponding totals for the United States were considerably less in 1905 than in 1900, and shows that New England owes the maintenance of its prestige in the industry to the large gains made in Massachusetts.

The increase in capital reported for Massachusetts in 1905 as compared with 1900 was \$11,952,098, or 31.8 per cent, and in value of products, \$27,176,183, or 23.2 per cent. These are by far the largest absolute increases shown for capital and value of products by any state, and, in fact, are larger than the entire amount of these items reported by any state in the country except New York.

All of the New England states, except Massachusetts, reported a decrease in either capital or value of products in 1905. In 1900 Massachusetts reported a large decrease in capital and a very small increase comparatively in value of products, while all the other New England states, with the exception of Connecticut, reported considerable increases in both items.

Next to Massachusetts the most prominent state was New York, but the capital reported was less than one-third and the value of products less than one-fourth

the amounts of these items reported for Massachusetts in 1905.

The 10 states next in rank to Massachusetts and New York in value of products in 1905 are Ohio, Missouri, New Hampshire, Pennsylvania, Maine, Illinois, New Jersey, Wisconsin, Minnesota, and Michigan in the order named. In capital the states rank the same as in value of products, except that Wisconsin leads New Jersey. Massachusetts, New York, Illinois, and Minnesota occupied the same relative positions in reference to capital and value of products in 1905 as in 1900. New Hampshire, Pennsylvania, and Maine declined and Missouri and Ohio advanced in rank in both items during the five-year period. Michigan advanced in capital only.

The advance in rank of Ohio and Missouri is especially notable, these two states being fourth and seventh, respectively, in 1900 and third and fourth in 1905. The increase in Missouri at the census of 1905 as compared with 1900 was \$4,058,325, or 97 per cent, in capital and \$12,240,350, or 108.8 per cent, in value of products, the largest increases shown for these items by any state except Massachusetts. The gain in Ohio was \$2,680,873, or 35.5 per cent, in capital and \$7,219,366, or 40.3 per cent, in value of products. The state was third in rank in absolute increase of capital and fourth in increase of value of products, New York showing a larger increase in the latter item.

The large gains in Ohio and Missouri account for the great growth of the industry in the North Central states. The states of Maine, New Hampshire, Vermont, Massachusetts, Connecticut, New York, New Jersey, and Pennsylvania, representing the East, reported products to the value of \$236,746,162; Maryland, Virginia, North Carolina, Georgia, Kentucky, Tennessee, Louisiana, and Texas, representing the South, reported products to the value of \$7,675,193; and Ohio, Indiana, Illinois, Michigan, Wisconsin, Minnesota, Iowa, Missouri, Nebraska, Utah, Washington, Oregon, and California, representing the West, reported products to the value of \$75,605,691. Thus 8 extreme Eastern states produced \$153,465,278 more than all the other states combined and 74 per cent of the entire product of the United States.

The number of establishments in the boot and shoe industry decreased in all the geographic divisions except the Southern states at the census of 1905 as compared with 1900. In the Western states this decrease has continued since 1880, and in the New England and Middle states since 1890. The decreases from 1900 to 1905 are very marked in most of the leading states in the industry, and the increases are principally found in states where the industry was comparatively small. Part of the large decrease in the number of establishments is due to the fact that the statistics include data for shops doing work for others, the number of such

shops being much larger in 1880 and in 1890 than at later censuses.

Table 10 shows, by states, the amount of capital invested in machinery, tools, and implements for 1890, 1900, and 1905, and the percentages of increase, and gives the number of machines leased or held under royalties, and the amounts paid for the use of the same as reported at the census of 1905.

TABLE 10.—Capital invested in machinery, tools, and implements, by states, with per cent of increase for each census period, 1890 to 1905, and number of machines leased or held under royalties and amount paid for use of same as reported in 1905.

STATE.	Census.	CAPITAL INVESTED IN MACHINERY, TOOLS, AND IM- PLEMENTS.		MACHINES LEASED OR HELD UNDER ROYALTIES.	
		Amount.	Per cent of in- crease.	Number.	Amount of rent.
United States.....	1905	\$18,964,510	12.8	18,995	\$3,343,425
	1900	16,807,305	21.1		
	1890	13,873,364			
California.....	1905	264,643	123.0	204	10,920
	1900	343,633	6.0		
	1890	324,252			
Connecticut.....	1905	80,480	131.3	115	7,328
	1900	117,172	121.4		
	1890	148,981			
Georgia.....	1905	27,528	17.6	10	293
	1900	23,400	500.0		
	1890	3,900			
Illinois.....	1905	732,884	16.2	486	40,670
	1900	781,083	22.8		
	1890	635,816			
Indiana.....	1905	30,573	168.5	60	1,769
	1900	97,157	307.5		
	1890	23,845			
Iowa.....	1905	71,516	117.3	88	10,027
	1900	86,471	21.8		
	1890	71,000			
Kentucky.....	1905	124,158	179.3	133	15,446
	1900	44,456	136.5		
	1890	70,000			
Louisiana.....	1905	94,175	29.1	72	11,532
	1900	72,933	19.3		
	1890	61,125			
Maine.....	1905	523,396	121.1	947	180,950
	1900	663,326	12.2		
	1890	591,804			
Maryland.....	1905	130,191	122.2	162	12,269
	1900	167,326	16.2		
	1890	178,433			
Massachusetts.....	1905	6,811,412	18.5	7,354	1,670,827
	1900	5,750,238	1.7		
	1890	5,656,038			
Michigan.....	1905	267,720	77.5	264	32,537
	1900	150,800	2.6		
	1890	146,997			
Minnesota.....	1905	409,362	21.4	310	31,520
	1900	337,236	143.5		
	1890	138,512			
Missouri.....	1905	1,220,824	51.7	1,182	233,419
	1900	804,668	108.4		
	1890	385,982			
Nebraska ¹	1905	46,100	429.9	28	5,777
	1900	8,700			
New Hampshire.....	1905	816,775	123.2	1,562	191,542
	1900	1,063,569	58.1		
	1890	672,537			
New Jersey.....	1905	684,059	17.1	586	94,165
	1900	736,375	38.2		
	1890	532,757			
New York.....	1905	2,445,143	3.5	1,775	334,146
	1900	2,362,396	16.6		
	1890	2,026,690			

¹ Decrease.

² Included in "all other states" in 1890.

TABLE 10.—*Capital invested in machinery, tools, and implements, by states, with per cent of increase for each census period, 1890 to 1905, and number of machines leased or held under royalties and amount paid for use of same as reported in 1905—Continued.*

STATE.	Census.	CAPITAL INVESTED IN MACHINERY, TOOLS, AND IM- PLEMENTS.		MACHINES LEASED OR HELD UNDER ROYALTIES.	
		Amount.	Per cent of in- crease.	Number.	Amount of rent.
North Carolina.....	1905	\$12,000	61.1	12	\$3,573
	1900	7,450	35.2		
	1890	11,500			
Ohio.....	1905	1,891,204	60.2	1,603	243,342
	1900	1,180,322	113.9		
	1890	551,756			
Oregon ²	1905	10,080		10	446
Pennsylvania.....	1905	1,340,855	2.4	1,065	125,715
	1900	1,309,513	15.9		
	1890	1,129,464			
Rhode Island ³	1900	6,200	17.5		
	1890	6,700			
Tennessee ⁴	1905	47,567		46	5,544
Texas ⁴	1905	12,710		15	2,965
Utah ⁵	1905	24,500	12.7	36	876
	1900	21,743			
Vermont.....	1905	46,971	139.5	46	2,801
	1900	77,596	156.9		
	1890	30,209			
Virginia.....	1905	154,104	227.6	181	16,597
	1900	47,034	140.6		
	1890	79,238			
Washington ⁵	1905	12,600	114.4	28	1,177
	1900	14,715			
Wisconsin.....	1905	611,810	32.4	581	54,807
	1900	462,255	48.6		
	1890	311,059			
All other states.....	⁶ 1905	19,170	172.5	34	335
	⁷ 1900	69,638	118.3		
	⁸ 1890	85,269			

¹ Decrease.

² Included in "all other states" in 1890 and 1900.

³ Included in "all other states" in 1905.

⁴ Included in "all other states" in 1890. Not reported in 1900.

⁵ Included in "all other states" in 1890.

⁶ Includes states as follows: Colorado, Delaware, Indian Territory, and Rhode Island.

⁷ Includes states as follows: Alabama, Colorado, Delaware, Kansas, Oregon, and Tennessee.

⁸ Includes states as follows: Alabama, Delaware, Kansas, Nebraska, Oregon, South Carolina, Tennessee, Texas, Utah, and Washington.

The amount of capital invested in machinery, tools, and implements increased \$2,933,941, or 21.1 per cent, from 1890 to 1900, and \$2,157,205, or 12.8 per cent, from 1900 to 1905. The percentage of increase for the census period from 1900 to 1905 was relatively greater than that for the ten-year period between 1890 and 1900, but it was very much less than the percentage for total capital shown in Table 1. The value of the machines leased or held under royalties should be added to the amount of capital reported as invested in machinery to give the total machine equipment, but data concerning the value of these machines are not available. In 1905, for the first time, a census was taken of machines leased or held under royalties and the amount paid for their use. The number of establishments reporting such machines was 937, the number of machines reported was 18,995, and the amount paid for leases was \$3,343,425. The sum paid for the

leased machines is not a fair basis for an estimate as to the valuation of such machines, since the amount of the leases or royalties depends on the kind and amount of work done and not on the value of the machines. The result, however, with due allowance for machines the usefulness of which makes their income-producing power out of proportion to their intrinsic value, and for the fact that the figures given are less than they should be because some establishments failed to make returns, proves that the amount of capital invested in leased machines is very large.

Massachusetts reported the largest amount of capital invested in machinery in 1905, namely, \$6,811,412, or 35.9 per cent of the total for the country. For 1905 as compared with 1900, 11 states show decreases in the amount of capital invested in owned machinery, the greatest amount of decrease being \$246,794 for New Hampshire, and the greatest percentage of decrease being 68.5 for Indiana.

The total number of wage-earners employed in this industry in the United States increased 8,140, or 6.1 per cent, from 1890 to 1900, and 8,094, or 5.7 per cent, from 1900 to 1905. The number of men employed decreased 991, or 1.1 per cent, from 1890 to 1900, and increased 4,842, or 5.4 per cent, from 1900 to 1905. For the same periods the number of women increased 7,045, or 17.7 per cent, and 2,641, or 5.6 per cent, respectively, while the number of children increased 2,086, or 85.7 per cent, and 611, or 13.5 per cent, respectively.

Table 11 shows the average number of wage-earners—men, women, and children—employed in the boot and shoe industry and the proportion of each class to the total in the United States and in the several states for the censuses from 1890 to 1905.

TABLE 11.—*Average number of wage-earners and proportion of men, women, and children, by states: 1890 to 1905.*

STATE.	Cen- sus.	AVERAGE NUMBER OF WAGE- EARNERS.				PER CENT OF TOTAL.		
		Total.	Men 16 years and over.	Women 16 years and over.	Child- ren under 16 years.	Men.	Wom- en.	Child- ren.
United States.....	1905	149,924	95,257	49,535	5,132	63.6	33.0	3.4
	1900	141,830	90,415	46,894	4,521	63.7	33.1	3.2
	1890	133,690	91,406	39,849	2,435	68.4	29.8	1.8
California.....	1905	700	516	170	14	73.7	24.3	2.0
	1900	994	720	241	33	72.4	24.3	3.3
	1890	2,280	1,843	389	48	80.8	17.1	2.1
Connecticut.....	1905	489	282	187	20	57.7	38.2	4.1
	1900	719	456	254	9	63.4	35.3	1.3
	1890	995	698	285	12	70.2	28.6	1.2
Georgia.....	1905	239	184	35	20	77.0	14.6	8.4
	1900	250	190	40	20	76.0	16.0	8.0
	1890	22	18	3	1	81.8	13.6	4.6
Illinois.....	1905	3,947	2,451	1,369	127	62.1	34.7	3.2
	1900	4,461	2,684	1,544	233	60.2	34.6	5.2
	1890	3,992	2,678	1,282	32	67.1	32.1	0.8
Indiana.....	1905	226	146	71	9	64.6	31.4	4.0
	1900	610	434	170	6	71.1	27.9	1.6
	1890	173	124	46	3	71.7	26.6	1.7
Iowa.....	1905	478	250	200	28	52.3	41.8	5.9
	1900	566	272	227	67	48.1	40.1	11.8
	1890	292	176	116		60.3	39.7	

TABLE 11.—Average number of wage-earners and proportion of men, women, and children, by states: 1890 to 1905—Continued.

STATE.	Cen- sus.	AVERAGE NUMBER OF WAGE- EARNERS.				PER CENT OF TOTAL.		
		Total.	Men 16 years and over.	Women 16 years and over.	Child- ren under 16 years.	Men.	Wom- en.	Child- ren.
Kentucky.....	1905	659	357	251	51	54.2	38.1	7.7
	1900	207	94	69	44	45.4	33.3	21.3
	1890	296	178	108	10	60.1	36.5	3.4
Louisiana.....	1905	370	307	62	1	83.0	16.7	0.3
	1900	397	326	37	34	82.1	9.3	8.6
	1890	786	727	9	50	92.5	1.1	6.4
Maine.....	1905	5,775	3,942	1,791	42	68.3	31.0	0.7
	1900	6,432	4,346	2,064	22	67.6	32.1	0.3
	1890	6,382	4,047	2,301	34	63.4	36.1	0.5
Maryland.....	1905	651	406	226	19	62.4	34.7	2.9
	1900	896	597	285	14	66.6	31.8	1.6
	1890	1,182	792	380	10	67.0	32.2	0.8
Massachusetts.....	1905	62,633	41,386	20,139	1,108	66.1	32.1	1.8
	1900	58,645	39,022	18,636	987	66.5	31.8	1.7
	1890	67,374	47,817	18,577	980	71.0	27.6	1.4
Michigan.....	1905	1,723	974	573	176	56.5	33.3	10.2
	1900	1,117	691	417	9	61.9	37.3	0.8
	1890	1,309	847	454	8	64.7	34.7	0.6
Minnesota.....	1905	1,714	1,104	599	11	64.4	35.0	0.6
	1900	2,025	1,438	566	21	71.0	28.0	1.0
	1890	1,099	715	383	1	65.1	34.8	0.1
Missouri.....	1905	10,428	5,982	3,485	961	57.4	33.4	9.2
	1900	5,915	3,256	2,207	452	55.1	37.3	7.6
	1890	2,716	1,569	1,024	123	57.8	37.7	4.5
Nebraska ¹	1905	121	80	41	.....	66.1	33.9	.....
	1900	55	18	37	.....	32.7	67.3	.....
New Hampshire....	1905	10,415	6,921	3,379	115	66.5	32.4	1.1
	1900	12,007	7,755	3,866	386	64.6	32.2	3.2
	1890	7,912	5,418	2,370	124	68.5	29.9	1.6
New Jersey.....	1905	4,192	2,580	1,388	224	61.6	33.1	5.3
	1900	4,421	2,740	1,497	184	62.0	33.8	4.2
	1890	5,162	3,294	1,720	148	63.8	33.3	2.9
New York.....	1905	16,556	10,543	5,678	335	63.7	34.3	2.0
	1900	15,796	9,754	5,483	559	61.8	34.7	3.5
	1890	15,361	10,150	4,839	372	66.1	31.5	2.4
North Carolina.....	1905	89	60	26	3	67.4	29.2	3.4
	1900	40	40	.....	.....	100.0	.....	.....
	1890	95	79	8	8	83.2	8.4	8.4
Ohio.....	1905	13,890	7,747	5,315	828	55.8	38.3	5.9
	1900	12,718	7,289	4,781	648	57.3	37.6	5.1
	1890	5,743	3,523	2,149	71	61.4	37.4	1.2
Oregon ²	1905	25	24	1	.....	96.0	4.0	.....
Pennsylvania.....	1905	8,878	5,247	2,978	653	59.1	33.5	7.4
	1900	9,144	5,291	3,239	614	57.9	35.4	6.7
	1890	7,616	4,842	2,441	333	63.6	32.0	4.4
Rhode Island ³	1900	9	4	1	1	44.5	44.5	11.0
	1890	11	7	1	1	63.6	27.3	9.1
Tennessee ²	1905	225	136	60	29	60.4	26.7	12.9
Texas ⁴	1905	43	38	3	2	88.4	7.0	4.6
Utah ¹	1905	109	72	32	5	66.0	29.4	4.6
	1900	140	98	40	2	70.0	28.6	1.4
Vermont.....	1905	225	126	99	.....	56.0	44.0	.....
	1900	355	199	155	1	56.0	43.7	0.3
	1890	227	141	76	10	62.1	33.5	4.4
Virginia.....	1905	1,738	1,332	342	64	76.6	19.7	3.7
	1900	1,153	1,021	127	5	88.6	11.0	0.4
	1890	252	168	77	7	66.7	30.5	2.8
Washington ¹	1905	106	78	28	.....	73.6	26.4	.....
	1900	75	50	22	3	66.7	29.3	4.0
Wisconsin.....	1905	3,226	1,949	991	286	60.4	30.7	8.9
	1900	2,507	1,494	849	164	59.6	33.9	6.5
	1890	2,036	1,273	727	36	62.5	35.7	1.8
All other states....	⁵ 1905	54	37	16	1	68.5	29.6	1.9
	⁶ 1900	176	136	37	3	77.3	21.0	1.7
	⁷ 1890	377	282	82	13	74.8	21.8	3.4

¹Included in "all other states" in 1890.²Included in "all other states" in 1890 and 1900.³Included in "all other states" in 1905.⁴Included in "all other states" in 1890. Not reported in 1900.⁵Includes states as follows: Colorado, Delaware, Indian Territory, and Rhode Island.⁶Includes states as follows: Alabama, Colorado, Delaware, Kansas, Oregon, and Tennessee.⁷Includes states as follows: Alabama, Delaware, Kansas, Nebraska, Oregon, South Carolina, Tennessee, Texas, Utah, and Washington.

A study of the figures for the individual states shows that the largest number of wage-earners was reported for Massachusetts both in 1900 and in 1905; the numbers were 62,633, or 41.8 per cent of the total in the United States in 1905 and 58,645, or 41.3 per cent of the total in 1900. The number reported for this state in 1905 was nearly four times that reported for the state with the next highest number. In 1905 New York, Ohio, Missouri, and New Hampshire followed Massachusetts in the order named in total number of wage-earners. These 5 states, which were the only ones reporting over 10,000 wage-earners in 1905, had a combined total of 113,922, or 76 per cent of the entire number of wage-earners reported for the industry in the country.

These states were also the leading states in the number of men and the number of women wage-earners, New Hampshire leading Missouri in order of rank for the number of men. In 1900 Massachusetts, New York, Ohio, and New Hampshire led and Missouri was exceeded in number of wage-earners by Pennsylvania and Maine. As regards number of children employed in this industry, Massachusetts reported the largest number, namely, 1,108; Missouri was second with 961; Ohio, third with 828; Pennsylvania, fourth with 653; and New York, fifth with 335.

The returns for 15 states show a decrease in the number of wage-earners reported in 1905 compared with 1900. These states and the amounts of decrease are as follows: New Hampshire, 1,592; Maine, 657; Illinois, 514; Indiana, 384; Minnesota, 311; California, 294; Pennsylvania, 266; Maryland, 245; Connecticut, 230; New Jersey, 229; Vermont, 130; Iowa, 88; Utah, 31; Louisiana, 27; and Georgia, 11. The total decrease for the 15 states was 5,009. The largest percentage of decrease, 63, is shown for Indiana.

The states reporting in 1905 an increase in the total number of wage-earners as compared with 1900 and the amounts of increase are as follows: Missouri, 4,513; Massachusetts, 3,988; Ohio, 1,172; New York, 760; Wisconsin, 719; Michigan, 606; Virginia, 585; Kentucky, 452; and Nebraska, North Carolina, Texas, and Washington, for each of which an increase of less than 100 was reported. The total increase for the 12 states was 12,984.

The increases in Missouri and Ohio are especially noteworthy, and indicate the great development of the industry in these states.

There was a slight decrease in the proportion of men during each census period and an increase in the proportion of children. The proportion of women was greater in 1900 than in 1890, but slightly smaller as reported in 1905 than in 1900.

In 1905 Oregon reported the largest proportion of men, 96 per cent of the state total; Vermont, the largest proportion of women, 44 per cent; and Tennessee, the largest proportion of children, 12.9 per cent. Iowa reported the smallest proportion of men, 52.3 per cent; Oregon, the smallest proportion of

women, 4 per cent; and Louisiana, the smallest proportion of children of the states employing children, namely, three-tenths of 1 per cent. Four states, however—Nebraska, Oregon, Vermont, and Washington—reported no children in 1905.

As shown in Table 16, the greatest number of wage-earners employed at any one time during the census year 1905 was 174,650 and the least number, 125,001; in the census year 1900 the greatest number was 168,412 and the least number, 115,836. March was the most active month in 1905 and in 1900; the reports

for 1905 show that the total average number employed during that month was 153,025, or 3,101 more than the average for the year, while the reports for 1900 show a total of 148,728, or 6,898 more than the average for the year.

Table 12 shows 13 cities reporting in 1905 products valued at over \$5,000,000, ranked by value of products for the census years 1890, 1900, and 1905, with the percentages of increase. The figures for Lestershire, N. Y., can not be presented separately, as to do so would disclose operations of individual establishments.

TABLE 12.—CITIES REPORTING IN 1905 PRODUCTS OF OVER \$5,000,000, RANKED BY VALUE OF PRODUCTS, WITH PER CENT OF INCREASE: 1890 TO 1905.

CITY.	1905		1900		1890		PER CENT OF INCREASE.	
	Rank.	Value of products.	Rank.	Value of products.	Rank.	Value of products.	1900 to 1905	1890 to 1900
Brockton, Mass.....	1	\$30,073,014	1	\$19,844,397	2	\$16,171,624	51.5	22.7
Lynn, Mass.....	2	25,952,571	2	16,830,733	1	20,190,695	54.2	116.6
St. Louis, Mo.....	3	19,101,166	6	8,286,156	9	4,250,960	130.5	94.9
Haverhill, Mass.....	4	15,257,899	3	15,231,440	3	16,137,352	0.2	15.6
New York, N. Y.....	5	11,905,374	4	9,124,495	4	7,796,296	30.5	17.0
Cincinnati, Ohio.....	6	10,596,928	5	8,513,424	8	6,024,454	24.5	41.3
Rochester, N. Y.....	7	8,620,011	7	6,933,111	7	6,489,382	24.3	6.8
Marlboro, Mass.....	8	6,620,455	13	3,852,931		(²)	71.8	-----
Manchester, N. H.....	9	6,567,903	11	4,052,204	22	39,024	62.1	10,283.9
Chicago, Ill.....	10	5,592,684	9	5,723,126	5	7,257,034	12.3	121.1
Boston, Mass.....	11	5,575,927	12	3,882,655	16	1,508,697	43.6	157.4
Columbus, Ohio.....	12	5,425,087	15	3,505,126	19	359,000	54.8	876.4
Philadelphia, Pa.....	13	5,171,859	8	5,931,045	6	6,851,834	112.8	113.4

¹ Decrease.

² Not reported separately.

The value of products reported in 1905 for the 13 cities producing more than \$5,000,000 worth of boots and shoes was \$156,460,878, or 48.9 per cent of the value of all the boots and shoes manufactured in the United States at that census. In 1900 the aggregate value of products for the same cities was \$111,710,843, or 43.1 per cent of the total for the country. In 1890 the value of products for Marlboro, Mass., was not reported separately, and consequently does not appear in the table; but this omission does not detract seriously from the significance of the figures for that year. The aggregate value of products of the 12 other cities in 1890 was \$93,076,352, or 42.2 per cent of the total for the United States.

The proportion which the aggregate production of these cities formed of the total for the United States at each census was not changed materially from 1890 to 1900; but the large increase in this proportion at the census of 1905 indicates that the boot and shoe industry is being strongly affected by the tendency to centralization which is characteristic of modern commercial activity.

This centralization is further emphasized by the fact that 6 of the 13 cities produced more than \$10,000,000 worth of shoes each in 1905, and the value of their aggregate production amounted to \$112,886,952, or 35.3 per cent of the total for the United States and 72.2 per cent of the total for the 13 cities. In 1900 the value of products reported for the same cities was \$77,830,645,

or 30.1 per cent of the total for the country and 69.7 per cent of the total for the 13 cities.

Brockton was the first city in the country in 1905 in the value of boots and shoes produced. The output of this city during the census year was valued at \$30,073,014, and represented 9.4 per cent of the total value of products reported for the industry in the United States. Lynn, which had been the leading city for one hundred and seventy-five years, was displaced from first position by Brockton in 1900, and has since occupied second place. The value of products reported for Lynn in 1905 was \$25,952,571, or 8.1 per cent of the total for the country.

The manufacture of boots and shoes was carried on almost entirely in eastern Massachusetts until well along in the last century. During the past fifty years, however, important centers of production have arisen in some of the other Eastern states and in the West. St. Louis, Cincinnati, Columbus, Chicago, Philadelphia, New York, and other cities of New York state, especially Rochester, have all become very prominent in the industry. This development does not seem to have detracted materially from the growth of the industry in the older center, the country apparently being able to take not only all the product which Massachusetts offers, but also that which is produced in other newly created centers.

At the census of 1905 only 2 of the 13 cities showed a decrease in value of products as compared with the

value reported in 1900. These cities were Philadelphia and Chicago, both having continued to decline at each census since 1890. All but 1 of the remaining cities reported large increases for the five-year period, in most cases the increase being greatly superior to that for the previous ten years. Haverhill, where there was a considerable decline at the census of 1900, reported a small increase in 1905. New York, Marlboro, Columbus, Cincinnati, Boston, Rochester, and Manchester reported increases between \$1,000,000 and \$3,000,000; and the 3 remaining cities—St. Louis, Brockton, and Lynn—reported increases between \$8,000,000 and \$11,000,000. The net increase in value of products for the 13 cities in 1905, as compared with 1900, was \$44,750,035, or 40.1 per cent.

In 1905 the increase in value of products reported for St. Louis was \$10,815,010, or 130.5 per cent. This is the most noteworthy increase shown by any of the cities prominent in the industry. So great has been the advance in production that it indicates clearly the establishment of an important center of shoe manufacture and distribution in the West similar to the concentration in New England. This interesting condition is probably due to the great increase in population which is taking place in the West and the creation in consequence of centers of production in that region. In 1900 Lynn and Haverhill, two large producing cities in New England, showed a considerable decline in value of products, but at the census of 1905 the gain in production reported for Lynn was the third largest of any of the cities, and Haverhill also showed an increase at this census over 1900, though production had not yet reached the magnitude reported in 1890. Indeed in 1900, when these two cities seemed to be losing ground in the industry, Manchester, another New England city, showed a remarkable gain, and Brockton reported increases at both censuses nearly equal to those of St. Louis, although the output of the industry in Brockton was already by far the largest of any city in the country.

Table 13 presents the value of products for 1900 and 1905 of 30 cities reporting in 1905 an output of between \$1,000,000 and \$5,000,000 worth of boots and shoes. There were 46 such places at this census; but 16 are omitted from the table in order to avoid disclosing the operations of individual establishments. Of these, 13 had less than 3 establishments, these places being Derry, Exeter, and Nashua, N. H.; Bridgewater, Milford, Spencer, Stoughton, Wayland, and Webster, Mass.; Auburn and Endicott, N. Y.; Lynchburg and Richmond, Va.; and 3 places—Stoneham, Mass., Rochester, N. H., and Hannibal, Mo.—each had 3 establishments, but all except a small part of the product, in each case, was that of one or two establishments.

TABLE 13.—*Cities and towns with three or more establishments reporting in 1905 products between \$1,000,000 and \$5,000,000, and their value of products: 1905 and 1900.*

CITY.	VALUE OF PRODUCTS.	
	1905	1900
Auburn, Me.	\$4,263,162	\$4,176,826
Portsmouth, Ohio	4,258,855	3,043,916
Newburyport, Mass.	3,920,969	2,714,693
Salem, Mass.	3,895,947	2,974,631
Whitman, Mass.	3,835,628	3,609,009
Abington, Mass.	3,269,556	2,170,880
Rockland, Mass.	2,992,148	1,604,000
Milwaukee, Wis.	2,929,405	2,195,928
Natick, Mass.	2,896,110	2,228,791
Lancaster, Ohio	2,699,000	968,020
Hudson, Mass.	2,632,375	2,317,636
Weymouth, Mass.	2,588,213	2,235,253
Beverly, Mass.	2,416,110	2,627,587
Newark, N. J.	2,382,051	2,530,048
Jefferson City, Mo.	2,354,918	2,236,278
St. Paul, Minn.	2,186,599	1,645,999
Chelsea, Mass.	2,044,250	739,817
Detroit, Mich.	2,038,673	1,212,742
South Braintree, Mass.	1,904,521	837,100
Worcester, Mass.	1,724,664	1,610,605
Lowell, Mass.	1,456,842	957,035
Middleboro, Mass.	1,302,730	1,066,568
San Francisco, Cal.	1,287,740	1,618,514
Syracuse, N. Y.	1,253,982	804,762
Burlington, N. J.	1,240,415	1,180,649
North Adams, Mass.	1,211,076	2,881,474
Allentown, Pa.	1,126,066	900,976
Carlisle, Pa.	1,078,401	918,315
Dover, N. H.	1,015,872	1,113,266
Baltimore, Md.	1,011,393	1,065,507

In 1905, of the 30 cities shown in this table, 12 reported value of products between \$1,000,000 and \$2,000,000; 12, between \$2,000,000 and \$3,000,000; 4, between \$3,000,000 and \$4,000,000; and 2, between \$4,000,000 and \$5,000,000.

Of the cities shown, 6 reported a decrease in value of products in 1905 as compared with 1900. These places are North Adams and Beverly, Mass.; Dover, N. H.; San Francisco, Cal.; Newark, N. J.; and Baltimore, Md. There were 2 cities that reported an increase in value of products of less than \$100,000, namely, Auburn, Me., and Burlington, N. J. Increases between \$100,000 and \$500,000 were reported for 10 places, namely, Lowell, Weymouth, Hudson, Middleboro, Whitman, and Worcester, Mass.; Syracuse, N. Y.; Allentown and Carlisle, Pa.; and Jefferson City, Mo. Of the remaining places, 5 had increases between \$500,000 and \$1,000,000, namely, Salem and Natick, Mass.; Detroit, Mich.; Milwaukee, Wis.; and St. Paul, Minn.; and 7 had increases of more than \$1,000,000, namely, Lancaster and Portsmouth, Ohio; and Rockland, Chelsea, Newburyport, Abington, and South Braintree, Massachusetts.

The largest decrease for the period, \$1,670,398, was reported for North Adams, Mass., and the largest increase, \$1,730,980, for Lancaster, Ohio.

The net increase for the 30 cities and towns was \$13,030,846, or 23.2 per cent. This percentage of increase compared with the percentage of 40.1 for the 13 cities having more than \$5,000,000 in value of products indicates a proportionately more rapid growth of the industry in the large centers.

The total value of products for the 60 cities and towns reporting in 1905 an output of \$1,000,000 and over was \$259,977,631, or 81.2 per cent of the total for the United States, and for the 57 cities and towns having an output of \$1,000,000 and over in 1900 it was \$195,761,287, or 75.6 per cent of the total.

Of the cities and towns that reported over \$1,000,000 value of products in 1905, 9 reported less than that amount in 1900 and were not shown separately at that census, and 2 (Endicott, N. Y., and Lynchburg, Va.) reported no products at all. In 1905, 8 (New Bedford, North Brookfield, and Randolph, Mass.; Claremont, Portsmouth, and Somersworth, N. H.; Dixon, Ill.; and Minneapolis, Minn.) dropped from the \$1,000,000 rank which they held in 1900, and consequently are not shown in the preceding table.

Table 14 shows the number of establishments reporting power, total horsepower, and the amount and kind of power used, for the census years 1890, 1900, and 1905.

TABLE 14.—Number of establishments reporting power, and amount of each kind of power: 1890 to 1905.

	1905	1900	1890
Number of establishments.....	1,316	1,599	2,082
Number of establishments reporting power.....	1,116	1,284	1,364
Total horsepower.....	62,587	50,623	30,686
Owned:			
Engines—			
Steam—			
Number.....	534	632	738
Horsepower.....	40,228	34,666	22,602
Gas or gasoline—			
Number.....	115	90	.....
Horsepower.....	2,355	1,156	309
Waterwheels—			
Number.....	30	52	40
Horsepower.....	1,586	2,240	1,845
Electric motors—			
Number.....	536	117	.....
Horsepower.....	6,367	1,629	529
Other power, horsepower.....	51	91	89
Rented:			
Electric, horsepower.....	5,328	3,422	.....
Other kind, horsepower.....	6,672	7,419	5,312

The proportion of establishments reporting power was 65.5 per cent in 1890, 80.3 per cent in 1900, and 84.8 per cent in 1905. The small proportion not reporting power were mainly establishments that made handmade shoes or used machinery operated by foot or hand power.

The average horsepower per establishment reporting power was 22.5 in 1890, 39.4 in 1900, and 56.1 in 1905.

Including "other power" both owned and rented, which is practically all steam, the amount of steam-power reported was 28,003 horsepower in 1890, 42,176 horsepower in 1900, and 46,951 horsepower in 1905. Between the censuses of 1890 and 1900 the increase was 50.6 per cent, and between 1900 and 1905 it was only 11.3 per cent. Steam is still the principal kind of power used, although the proportion it forms of the total has decreased from 91.3 per cent in 1890 to 83.3 in 1900, and to 75 in 1905.

For electric power there was a remarkable increase. The reports showed only 529 horsepower generated by electricity in 1890, or 1.7 per cent of the total for all

kinds of power. This increased to 5,051 horsepower, or 10 per cent of the total in 1900, and to 11,695 horsepower, or 18.7 per cent of the total in 1905. The percentage of gain from 1890 to 1900 was 854.8 and from 1900 to 1905, 131.5.

The use of power generated by gas engines has also increased, although its proportion to the total has been small—1 per cent in 1890, 2.3 in 1900, and 3.8 in 1905.

Waterpower shows a decided decrease proportionately. The percentage of the total was 6 in 1890, 4.4 in 1900, and 2.5 in 1905.

Reference to Table 16, in which statistics of power are presented by states, shows that in 1905 Massachusetts reported the most horsepower, 20,597, or 32.9 per cent of total; Ohio was next with 7,431; Missouri, third with 7,371; and New York, fourth with 5,952. The total horsepower for these 4 states was 41,351, or 66.1 per cent of the total for the United States. Each of the remaining states reported less than 5,000 horsepower.

Missouri had the greatest average horsepower per establishment, 216.8, and every establishment in the state reported the use of power. Utah ranked second, with an average of 166.7, 3 of its 4 establishments reporting. Ohio ranked third with an average of 123.9 horsepower, and 60 out of 62 factories in the state reported power.

Massachusetts averaged only 47.1 horsepower per establishment, and 65 of the establishments in the state did not report the use of power. In 1905 the use of power of some kind was reported for every state in which the manufacture of boots and shoes was carried on.

Export trade in the boot and shoe industry has continued for nearly one hundred years. From a small beginning the trade grew slowly until in 1865 a total value of a little over \$2,000,000 was reached, but the following year it dropped to almost nothing and continued so until 1870, when there was a revival, and the increase has been fairly steady ever since.

Table 15 shows the quantities and values of the exports of leather boots and shoes from 1870 to 1905.

TABLE 15.—Quantities and values of the exports of leather boots and shoes: 1870 to 1905.¹

YEAR.	Number of pairs.	Value.	YEAR.	Number of pairs.	Value.
1905.....	5,315,699	\$8,057,697	1887.....	623,714	\$732,517
1904.....	4,642,531	7,238,940	1886.....	554,365	648,069
1903.....	4,197,566	6,665,017	1885.....	492,906	598,151
1902.....	3,966,766	6,182,008	1884.....	502,122	602,925
1901.....	3,492,041	5,526,240	1883.....	442,687	539,957
1900.....	3,016,720	4,276,656	1882.....	389,120	488,815
1899.....	1,934,277	2,711,385	1881.....	300,968	374,343
1898.....	1,307,031	1,816,538	1880.....	378,274	441,069
1897.....	1,224,484	1,708,224	1879.....	329,355	402,557
1896.....	1,036,235	1,436,686	1878.....	351,152	468,436
1895.....	822,412	1,010,228	1877.....	300,484	414,630
1894.....	647,318	777,354	1876.....	263,508	368,633
1893.....	493,027	590,754	1875.....	293,051	429,363
1892.....	745,112	914,974	1874.....	243,500	383,417
1891.....	551,733	651,343	1873.....	260,759	421,548
1890.....	587,108	662,974	1872.....	325,296	502,689
1889.....	518,750	585,902	1871.....	301,216	445,466
1888.....	563,871	654,896	1870.....	276,179	419,612

¹ Bureau of Statistics, Department of Commerce and Labor, Statistical Abstract of the United States.

The average annual value of the leather boots and shoes exported during the decade from 1870 to 1880 was \$425,635; for the following ten years it was \$566,664; for the next ten years it was \$1,228,046; and for the six years ending with 1905 it was \$6,324,450.

The total value of the exports for 1905 was \$8,057,697, a sum nearly equal to the total value of the exports for the twenty years from 1870 to 1890 and about two-thirds of the total for the ten years from 1890 to 1900. From 1900 to 1905 the value of the exports nearly doubled, increasing from \$4,276,656 to \$8,057,697, a gain of \$3,781,041, or 88.4 per cent.

There is a demand from England, Germany, France, Belgium, Switzerland, Australia, South America, Central America, and even from South Africa and China

for American made shoes. If styles are made to conform to the wants of foreign countries, and marketing difficulties, like replenishing stocks, are overcome, there seems to be no reason why the United States, which leads the nations in the manufacture of shoes, should not lead in supplying the markets of the world.

The increase in amount of power owned and rented in connection with the manufacture of boots and shoes in the United States from 1890 to 1905 was 31,901 horsepower, or 104 per cent. With the increased use of power and machinery there has followed an increased value of products per wage-earner, which was \$1,494 in 1880, \$1,650 in 1890, \$1,826 in 1900, and \$2,135 in 1905.

Table 16 is a detailed summary of the statistics for the industry, by states, for 1905.

HISTORICAL AND DESCRIPTIVE.

Early history.—Historians state that some kind of a covering has always been used for the feet, for even in the most ancient times, when the ordinary individual went barefooted, men of rank wore foot gear of some sort.

The contrivances devised to protect and ornament the feet ranged from a single piece of leather fixed to the foot by means of a strap, to elaborate shoes embroidered with gold and ornamented with pearls.

In America cordwainers or shoemakers settled first in Massachusetts about 1629, then later on in Virginia, Connecticut, New York, New Jersey, Pennsylvania, and Rhode Island. They did work for their neighbors or went to the homes of people in sparsely settled regions to make and repair shoes. While at work the shoemaker sat upon a low bench having at one end a leather covered seat and at the other a series of compartments for tools. Underneath was a drawer to hold thread, patterns, etc., and within easy reach other necessary articles were placed. It is remarkable that to-day after several centuries the same style of outfit is used by thousands of shoemakers or cobblers engaged in mending shoes.

No changes of any consequence occurred in the industry until 1750, and then a period of slow transition began. Some enterprising shoemakers commenced to employ other shoemakers, division of labor was instituted, and the quality of shoes improved.

With increased population the production was increased and the business extended. Lynn, Mass., which was the "cradle of the industry," became the leading boot and shoe producing city, and, with scarcely an interruption, held this rank until 1900, when Brockton, Mass., was first and Lynn second, although the value of products reported in 1905 for the latter city was over \$25,000,000.

Early in the nineteenth century shops were made larger; cutting, binding, and bottoming departments were established; and workmen began to devote them-

selves to particular branches of the work. This was the beginning of the change of boot and shoe making from a hand trade to a factory industry.

Machinery.—Until the invention of the wooden shoe peg in 1811, a few shoes were nailed, but nearly all were sewed. All the processes were hand work, but the availability of machinery was being considered and the London Society of Arts had offered premiums for the invention of machines that would enable shoemakers to work in a standing position and thus relieve the pressure upon the breast and the fatigue caused by the stooping position. Little was accomplished, however, and the few machines invented both here and abroad were very crude. Labor was cheap and the demand was not very pressing, so the old methods continued in use. While some men employed others to work for them, all were shoemakers and the manufacturers of later times were unknown.

In 1852 American shops began using sewing machines for closing and binding uppers with dry thread. This use of the sewing machine marked the beginning of a new era in the making of boots and shoes. Soon "rolling," "buffing," "splitting," and "racing" machines were employed to prepare sole leather for use. The invention of these machines and others, such as a machine for sewing soles to shoes; of die-machines to cut soles, taps, and heels; cable-wire nailers; sandpapering, heel making, burnishing, and pegging machines; and also the substitution of steampower for handpower occurred between 1845 and 1860.

The following quotation from "The United States of America," Vol. II, pages 855 to 857, edited by N. S. Shaler, S. D., presents an interesting summary of the inventions that have been of use in the manufacture of boots and shoes:

The progress of invention for the ten years from 1860 to 1870 may be summarily stated as follows: The McKay sole-sewing and turned-shoe machines and the Townsend and Bean wax-thread machines were introduced, and peggers by Sargent, Whittemore, and

Stevens were perfected. Machines for nailing soles with wire were made by Sargent, Blake, Libby, and Goddu, and for screwing on soles by Sellier, Lemerrier, Cabourg, and others; and various forms of nail wire were invented by Smith, Goddard, Wickersham, and others. The "American" lasting machine, improved from the Wells, and the lasting tacker and pegger of Ingalls and Fisher, came into use; and also the machines of G. W. Ellis and C. W. Glidden, for pricking, breasting, nailing, and trimming heels, which, perfected by Mr. Glidden under the direction of the McKay Heel-Machine Association, became and continue to be the leading machines of their kind.

During the same time there were introduced the power crimping machines, the sole-rounding machine of Stevens, the channel cutter of McKay, Blake, and others, the sole-molding machine of Johnson, the sole-beating machines of Gilmore and Tripp, while initial experiments were being made in rotary heel trimmers, heel and edge burnishers, and some other minor machines which were perfected at a later date. During this decade also were begun the turned-shoe welt and fair-stitch sewing machine by Daniel Mills and Charles Goodyear, which, consolidated with the McKay turned-shoe machine, and developed by the Goodyear and McKay Company, laid the foundation for the very successful line of turned and welt shoe machines now put out by that company.

During the next ten years the "Union" and "National" wax-thread machines, and the "Varney" pegger, were added to the existing list, the lock-stitch wax-thread machines were begun, and the compressed peg strip of Sturtevant was introduced. The "cable-wire" and "standard-screw" nailers were perfected by Mr. Goddu, and the continuous screw-wire, by Mr. Van Wagenen, of the American Cable-Screw Wire Company. Henry Dunham put out a machine to drive loose nails (afterwards acquired by the McKay Association), and L. Farnsworth a nail sorter for loading heels. The McKay heel machines were improved by Mr. Glidden, and others were brought out by Messrs. Baldwin, H. H. Bigelow, and E. Fisher, all of which became the property of the McKay and Bigelow Heel Machine Association. Welt and turned-shoe machines were being perfected by the Goodyear and McKay Company, and lasting machines were made by Thompson, Copeland, Glidden, and Fairfield, which were finally merged in the McKay and Copeland Lasting Machine Association in 1882.

In addition to these, there were introduced during this decade a number of finishing machines, and such as were less essential, though still valuable in economizing labor; and among the more important of these may be mentioned the following: The Busell heel and edge trimmers, the Tapley burnisher, shank-burnishing and buffing machine, skiving machines, heel-stiffener and box-toe machines, boot-treating machines, the Bray eyelet and lacing-hook setters, etc.

Since 1880 the Goodyear Company has added to its catalogue the shuttle fair-stitch, the new-welt sewer, and several minor machines; and the Campbell shuttle, the Eppler turned-shoe, and the McKay high-speed machine have been introduced. The McKay and Bigelow Associations have improved the Fisher and issued the "Automatic" and "Rapid" heel machines, and the competing "National" and "American" heel nailers and several heel-slugging machines have been put out. The Busell Company has perfected its rotary trimmers, and others have been made by A. F. Smith, the Acme Company, and Glidden. The McKay Association has put out the high speed "standard screw" and several other perfected machines, and a variety of wire nailers have been tried on cheap work.

The "Boston," and "Hand method," the Copeland "Rapid," and the Chase lasting machines have been put in use, the latter on men's fine shoes; and the heel burnishers have been made automatic and an electric method of burnishing introduced, which bids fair to supersede the others. Besides these, button-sewing, button-fastening, lacing-hook, and a variety of subordinate machines have been made.

Types of shoes.—There are three standard types of shoes manufactured; the oldest is the McKay. This shoe is sewed by being placed over a horn and the sewing done from a channel in the outsole through the sole and insole. The machine makes a "chain" or "loop" stitch from a single wax thread and leaves a ridge of thread on the inside of the shoe. It is a cheap grade shoe and extensively manufactured and used, despite the fact that when the outsole is worn through and a new one desired, it must be nailed on, there being no welt to which to sew the sole.

The next type in importance is the "turned" shoe. This shoe is made inside out and turned after stitching; the main effect of this process is that it gives flexibility to the shoe and thus causes it to be unsurpassed for women and for house use. Shoes made by this process, moreover, are neat in appearance and soft and comfortable to the feet. The best shoe made, however, is the "welt" shoe. This shoe is made on a machine which sews from the channel of the insole, through upper and welt, uniting all three, and leaving the loop on the outside of the welt. The outsole is then stitched to the welt only, by another machine, which sews from a channel made in the outsole, through outsole and welt.

The machines which make the "turned" and "welt" shoes, together with other machines that were made necessary to prepare and trim the insole, skive, round, channel, level, "separate or divide stitch," etc., comprise what is known as the "Goodyear system." To this system is due the perfection of the "turned" and "welt" shoes, the kinds that have made the American product famous.

Lasts and patterns.—In the manufacture of boots and shoes lasts and patterns take an important part.

Lasts are made of maple, persimmon, and basswood. The wood should be clean cutting, free from knots, not apt to split, hard of texture, and smooth grained. Trunks of small trees or branches of large ones are used chiefly, and those with thick bark yield the best timber for this purpose.

The trunks or boughs, after being cut into triangular pieces called "spokes," usually about 36 inches in length, are seasoned, a process requiring about two years. Then they are cut into three parts, called "blocks," and it is these blocks that are purchased by last manufacturers. The block when sawed by a circular saw into something like the shape required is ready to be turned by a last turning machine in accordance with the design and size wanted. Knifing is the next process, and then other machines are used to drill, rasp, scrape, and finish.

Standard lasts are modeled by hand from various designs and are held to standard girth measure. Fifty years ago they were crudely made in whole sizes and two or three widths only; now they are finely finished

in half and quarter sizes and many widths. As a consequence ready-made shoes are more generally worn than formerly.

There are many ways of making patterns and the processes are simple. In some factories a mold is taken to fit the last and the pattern is designed from this mold, allowances being made for seams, laps, and lasting. These patterns are made of pasteboard with brass bound edges or of zinc or iron. When comparisons are made between American and foreign made shoes, it is conceded that America leads. This is not only on account of superior workmanship, but also because of style and fit, qualities for which American last and pattern makers deserve a large share of the credit.

Methods of manufacture.—Lasts and patterns being furnished, the next step is the cutting of the upper leathers, linings, etc. Cutters must be skilled in their work and have a knowledge of the materials to be cut, and judgment sufficient to prevent any serious waste.

In the office of the factory, tickets describing the style of shoe required and other details are made out and sent to the distributing room, from which the stock, patterns, etc., are sent to the cutters. The outside of the shoe is cut by the upper cutters and the linings and trimmings by the trimming cutters.

The vamps, quarters, linings, trimmings, etc., are made into bundles and sent to the fitting department. Here pieces that are too heavy are run through a splitting machine and the edges are beveled by means of a skiving machine. Next, the different parts are pasted together, dried, and then sent to different machines, each machine being adjusted for its particular work. In the fitting room such processes as inking, perforating toe caps or vamps, beading, marking facings, and stitching are carried on.

The completed upper next passes to the sole-leather rooms, in which department also the major part of the work is done by machinery. By the use of the cutting machine the sides of leather are made into strips the length of the sole required. These strips are passed through a powerful machine, which hardens the leather and removes all irregularities from its surface. They are then shaved down to a uniform thickness, also by

machinery, and placed under dies which cut them out in the desired shape. The smaller pieces are died out in the form of lifts or heel pieces, which are joined together to the proper thickness and cemented, after which they are put in presses to make them solid. The top lift is not added until after the heel has been nailed to the shoe. The remaining sole leather is used for shank pieces, rands, and bottom leveling.

For the insole a lighter grade of leather is used. This leather is first cut into strips and then it is cut into the correct shape by a machine in which the required pattern has been placed; it is then shaved uniformly and channeled around the under edge for receiving the upper. The counters are died and skived, by machine, and the welts are cut into strips.

The uppers and soles are then sent to the bottoming department, where the first operation is that of lasting or tacking the uppers to the insoles. Then the upper, insole, and welt are firmly sewed together by the inseam-machine operator. Next, the bottom is filled, usually with granulated cork, and leveled off, and the steel shank piece is inserted. Then the bottom is coated with cement, and the outside sole pressed onto it by a machine. Next, the shoe is sent through a rounding machine, which rough trims and channels the outsole. After this process it goes to a channel-turning machine, and the channel is turned back for the stitching. Then it goes again to the stitching machine, which stitches through the welt and outsole, outside of the upper. The next steps are cementing, laying down the channel, and leveling, then trimming and heeling. The heels are nailed on in the rough and afterward trimmed into shape by a machine operating revolving knives, a breasting machine shaping the front of the heel. Still another machine drives in the brass nails and cuts them off flush with the top pieces. Then a machine for dividing or wheeling stitches is used and the edges of the soles are trimmed by an edging machine. Next, the heel is scoured and inked; the edges are set; the heels are burnished in ink and wax; and the soles are buffed, blacked, and polished by machinery. The shoes are then cleaned, and, after the lasts are removed, they are treed and packed.

TABLE 16.—BOOTS AND SHOES—DETAILED

	United States.	California.	Connecticut.	Georgia.	Illinois.	Indiana.
1 Number of establishments.....	1,316	21	9	7	44	4
2 Capital:						
3 Total.....	\$122,526,003	\$1,139,450	\$585,841	\$95,361	\$3,656,671	\$306,309
4 Land.....	\$2,572,107	\$64,055	\$1,900	\$1,050	\$160,900	\$4,500
5 Buildings.....	\$8,690,331	\$32,085	\$9,740	\$3,000	\$476,425	\$25,205
6 Machinery, tools, and implements.....	\$18,964,510	\$264,643	\$80,480	\$27,528	\$732,884	\$30,573
7 Cash and sundries.....	\$92,299,145	\$778,667	\$493,221	\$63,783	\$2,286,462	\$246,031
8 Proprietors and firm members.....	1,424	56	11	11	32	1
9 Salaried officials, clerks, etc.:						
10 Total number.....	8,811	50	46	10	287	23
11 Total salaries.....	\$8,706,682	\$51,378	\$52,185	\$9,380	\$322,626	\$19,833
12 Officers of corporations—						
13 Number.....	683	7	6	1	28	4
14 Salaries.....	\$1,723,773	\$12,880	\$13,440	\$1,200	\$96,970	\$6,600
15 General superintendents, managers, clerks, etc.—						
16 Total number.....	8,128	43	40	9	259	19
17 Total salaries.....	\$6,982,909	\$38,498	\$38,745	\$8,180	\$225,656	\$13,233
18 Men—						
19 Number.....	5,613	33	30	9	171	13
20 Salaries.....	\$5,850,363	\$33,600	\$32,973	\$8,180	\$184,606	\$11,133
21 Women—						
22 Number.....	2,515	10	10	—	88	6
23 Salaries.....	\$1,132,546	\$4,898	\$5,772	—	\$41,050	\$2,100
24 Wage-earners, including pieceworkers, and total wages:						
25 Greatest number employed at any one time during the year.....	174,650	819	579	249	4,891	296
26 Least number employed at any one time during the year.....	125,001	638	237	239	2,790	254
27 Average number.....	149,924	700	489	239	3,947	226
28 Total wages.....	\$69,059,680	\$384,504	\$204,013	\$66,515	\$1,865,319	\$70,610
29 Men 16 years and over—						
30 Average number.....	95,257	516	282	184	2,451	146
31 Wages.....	\$50,394,644	\$311,849	\$133,260	\$56,765	\$1,344,334	\$52,000
32 Women 16 years and over—						
33 Average number.....	49,535	170	187	35	1,369	71
34 Wages.....	\$17,681,763	\$70,110	\$68,029	\$6,750	\$502,821	\$17,065
35 Children under 16 years—						
36 Average number.....	5,132	14	20	20	127	9
37 Wages.....	\$983,273	\$2,545	\$2,724	\$3,000	\$18,164	\$1,545
38 Average number of wage-earners, including pieceworkers, employed during each month:						
39 Men 16 years and over—						
40 January.....	95,467	526	255	191	2,619	149
41 February.....	96,829	530	270	191	2,663	153
42 March.....	97,523	515	280	193	2,557	154
43 April.....	94,892	494	277	187	2,078	14
44 May.....	91,843	470	286	188	1,761	164
45 June.....	92,383	480	284	188	2,033	182
46 July.....	93,730	508	281	186	2,517	181
47 August.....	95,573	528	286	174	2,596	183
48 September.....	96,069	545	289	174	2,580	185
49 October.....	95,874	540	294	179	2,611	37
50 November.....	96,363	531	296	179	2,712	175
51 December.....	96,533	525	286	178	2,685	175
52 Women 16 years and over—						
53 January.....	49,466	172	148	35	1,394	82
54 February.....	50,211	172	142	35	1,410	65
55 March.....	50,603	169	177	35	1,377	70
56 April.....	49,383	164	175	35	1,186	20
57 May.....	47,872	153	164	35	1,062	80
58 June.....	47,948	153	164	35	1,332	91
59 July.....	48,466	164	197	35	1,443	86
60 August.....	49,751	175	204	35	1,458	88
61 September.....	49,838	179	206	35	1,469	92
62 October.....	50,136	189	223	35	1,427	35
63 November.....	50,219	178	213	35	1,454	82
64 December.....	50,527	172	205	35	1,416	81
65 Children under 16 years—						
66 January.....	4,892	11	10	20	107	12
67 February.....	4,983	10	24	20	113	12
68 March.....	4,899	10	24	20	121	11
69 April.....	4,950	12	20	20	115	—
70 May.....	4,966	16	21	20	104	11
71 June.....	5,224	15	18	20	115	11
72 July.....	5,464	17	21	20	129	11
73 August.....	5,385	17	22	20	139	10
74 September.....	5,244	16	20	20	145	10
75 October.....	5,192	13	20	20	154	—
76 November.....	5,197	17	17	20	142	10
77 December.....	5,188	14	23	20	140	10
78 Miscellaneous expenses:						
79 Total.....	\$19,293,634	\$65,396	\$131,175	\$10,806	\$580,076	\$40,135
80 Rent of works.....	\$1,147,759	\$15,635	\$6,295	\$3,088	\$38,120	\$120
81 Taxes.....	\$425,826	\$4,152	\$1,612	\$1,014	\$11,574	\$1,685
82 Rent of offices, interest, insurance, and all other sundry expenses not hitherto included.....	\$16,248,069	\$45,609	\$75,807	\$6,704	\$530,382	\$38,330
83 Contract work.....	\$1,471,980	—	\$47,461	—	—	—
84 Materials used:						
85 Total cost.....	\$197,363,495	\$961,169	\$787,774	\$264,710	\$5,656,109	\$299,612
86 Sole leather, in the side—						
87 Pounds.....	162,631,578	1,365,616	446,608	333,895	6,852,821	281,175
88 Cost.....	\$36,860,980	\$347,884	\$106,114	\$78,893	\$1,550,886	\$93,193
89 Sole leather, heads, bellies, shoulders, etc.—						
90 Pounds.....	42,510,899	248,221	220,350	7,050	1,139,248	87,883
91 Cost.....	\$7,374,070	\$39,956	\$32,572	\$1,372	\$219,993	\$10,236
92 Split leather, finished—						
93 Pounds.....	10,749,526	29,443	69,710	100,000	117,580	56,930
94 Cost.....	\$2,047,504	\$7,479	\$17,644	\$20,000	\$25,951	\$16,386
95 Rolled splits—						
96 Pounds.....	3,890,791	1,300	—	—	16,675	—
97 Cost.....	\$632,429	\$240	—	—	\$2,934	—
98 Calf and kip skins—						
99 Pounds.....	4,240,190	90,455	3,553	25,260	260,749	55,700
100 Cost.....	\$2,939,268	\$54,970	\$3,162	\$20,164	\$176,072	\$25,064
101 Grain and other side leather—						
102 Square feet.....	89,610,877	759,779	121,050	413,100	2,873,378	157,819
103 Cost.....	\$11,805,645	\$133,510	\$15,236	\$51,775	\$364,148	\$21,154

BOOTS AND SHOES.

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SUMMARY, BY STATES: 1905.

Iowa.	Kentucky.	Louisiana.	Maine.	Maryland.	Massachusetts.	Michigan.	Minnesota.	Missouri.	
5	9	10	50	14	502	23	17	34	1
\$419,280	\$756,468	\$351,948	\$4,450,939	\$430,520	\$49,529,728	\$1,702,398	\$2,432,365	\$8,242,304	2
\$1,900	\$35,500	\$28,500	\$62,870	.....	\$720,615	\$145,510	\$900	\$247,500	3
\$155,672	\$61,534	\$68,775	\$311,300	\$21,000	\$2,712,402	\$186,175	\$9,250	\$1,192,591	4
\$71,516	\$124,158	\$94,175	\$523,396	\$130,191	\$8,811,412	\$267,720	\$409,362	\$1,220,824	5
\$190,192	\$535,276	\$160,498	\$3,553,373	\$279,329	\$34,285,299	\$1,102,993	\$2,012,853	\$5,581,389	6
1	8	15	39	14	616	17	8	6	7
20	53	37	352	55	3,400	178	215	486	8
\$18,459	\$46,996	\$31,149	\$368,696	\$43,852	\$3,245,029	\$189,764	\$188,365	\$564,442	9
1	12	2	39	8	174	15	10	88	10
\$780	\$22,600	\$5,000	\$94,630	\$11,600	\$481,247	\$36,300	\$21,110	\$87,385	11
19	41	35	313	47	3,226	163	205	448	12
\$17,679	\$24,396	\$26,149	\$274,066	\$32,252	\$2,763,782	\$153,464	\$167,255	\$477,057	13
18	31	29	231	37	2,035	116	130	376	14
\$17,079	\$20,588	\$24,670	\$241,122	\$29,058	\$2,205,843	\$134,102	\$143,627	\$435,961	15
1	10	6	82	10	1,191	47	75	72	16
\$500	\$3,808	\$1,479	\$32,944	\$3,194	\$557,939	\$19,362	\$23,628	\$41,096	17
550	861	474	7,001	735	74,191	2,000	1,930	11,903	18
386	533	364	4,539	634	50,778	1,607	1,401	8,757	19
478	659	370	5,775	651	62,633	1,723	1,714	10,428	20
\$183,663	\$200,121	\$136,786	\$2,622,519	\$235,572	\$33,160,667	\$681,362	\$718,600	\$4,335,005	21
250	357	307	3,942	406	41,386	974	1,104	5,982	22
\$112,767	\$134,917	\$121,127	\$1,952,332	\$166,119	\$24,700,436	\$491,479	\$550,941	\$2,865,577	23
200	251	62	1,791	226	20,139	573	599	3,485	24
\$68,492	\$58,232	\$15,479	\$661,576	\$66,987	\$8,219,513	\$158,671	\$165,901	\$1,234,964	25
25	51	1	42	19	1,108	176	11	961	26
\$4,404	\$6,972	\$180	\$8,611	\$2,466	\$240,718	\$31,212	\$1,758	\$234,464	27
266	371	308	4,083	396	41,475	1,021	1,125	5,654	28
246	354	313	4,143	394	42,192	1,035	1,164	5,778	29
240	345	316	4,117	397	42,792	1,021	1,167	5,960	30
242	412	309	3,939	396	41,767	962	1,056	5,945	31
245	362	316	3,666	391	39,994	961	1,012	5,975	32
260	390	311	3,625	389	39,751	890	1,055	6,075	33
275	379	320	3,785	388	40,293	925	1,079	6,061	34
240	360	319	3,863	424	41,293	935	1,079	5,966	35
230	367	325	3,893	430	41,718	945	1,111	6,002	36
243	345	313	3,973	427	41,733	960	1,117	6,191	37
256	312	268	4,046	413	41,680	1,007	1,144	6,097	38
257	287	266	4,171	427	41,744	1,026	1,139	6,080	39
206	272	63	1,986	215	20,254	600	601	3,207	40
197	273	63	1,970	215	20,609	597	631	3,337	41
201	239	65	1,854	216	20,930	587	617	3,468	42
207	274	67	1,837	216	20,502	568	575	3,481	43
212	271	69	1,679	214	19,536	576	561	3,430	44
214	253	69	1,651	217	19,067	530	595	3,481	45
220	261	67	1,610	215	19,321	543	597	3,447	46
184	237	63	1,650	237	20,083	555	572	3,516	47
180	250	64	1,695	241	20,178	547	609	3,496	48
184	243	63	1,792	244	20,312	576	585	3,664	49
200	231	53	1,840	240	20,287	608	617	3,643	50
195	208	44	1,928	242	20,589	589	628	3,650	51
32	83	.....	37	16	1,057	189	8	923	52
31	73	.....	35	16	1,078	188	9	933	53
23	42	.....	35	16	1,075	179	9	940	54
23	52	1	38	16	1,082	167	10	914	55
24	57	1	38	16	1,038	166	13	956	56
32	52	1	50	17	1,065	168	14	971	57
34	52	2	53	17	1,165	171	14	957	58
30	52	2	51	21	1,196	174	14	942	59
22	57	1	44	21	1,180	167	11	950	60
24	42	1	43	22	1,151	171	11	996	61
32	28	1	40	25	1,114	184	10	1,017	62
29	22	2	40	25	1,095	188	9	1,033	63
\$50,135	\$218,998	\$29,464	\$528,101	\$68,101	\$8,340,835	\$370,011	\$382,056	\$967,157	64
\$900	\$2,396	\$3,876	\$17,093	\$10,354	\$443,512	\$23,358	\$41,281	\$46,664	65
\$1,184	\$1,366	\$350	\$16,657	\$2,496	\$203,268	\$9,932	\$9,932	\$17,863	66
\$45,051	\$111,633	\$25,238	\$488,859	\$55,251	\$6,835,805	\$332,658	\$278,546	\$623,936	67
.....	\$103,603	.....	\$5,492	.....	\$858,250	\$450	\$52,297	\$278,694	68
\$521,590	\$1,360,487	\$377,716	\$8,301,861	\$535,276	\$88,493,009	\$2,016,058	\$2,631,689	\$14,930,005	69
303,566	1,390,700	339,548	7,658,444	245,555	70,333,559	2,908,173	3,183,936	14,018,299	70
\$79,654	\$336,380	\$97,591	\$1,780,379	\$83,411	\$15,225,912	\$700,613	\$761,783	\$3,194,790	71
45,831	414,210	115,288	1,562,201	25,165	22,469,034	231,316	475,082	4,845,549	72
\$7,894	\$69,485	\$25,599	\$244,738	\$6,587	\$3,745,110	\$33,908	\$90,926	\$881,801	73
.....	22,000	3,000	303,793	160	7,263,699	27,461	10,000	817,400	74
.....	\$4,400	\$600	\$60,760	\$32	\$1,353,262	\$8,700	\$2,000	\$154,325	75
.....	144,928	400	272,249	137	967,829	26,490	130,568	460,758	76
.....	\$25,900	\$72	\$51,653	\$30	\$135,998	\$3,953	\$21,962	\$70,499	77
.....	.....	1,667	220,033	3,880	1,240,246	179,862	170,178	385,140	78
.....	.....	\$970	\$140,328	\$2,892	\$812,553	\$129,544	\$111,365	\$280,413	79
89,817	1,435,538	90,575	4,652,360	6,000	34,367,766	1,726,116	1,488,239	2,833,412	80
\$11,722	\$172,470	\$12,082	\$600,183	\$500	\$4,282,646	\$245,613	\$206,585	\$430,634	81

TABLE 16.—BOOTS AND SHOES—DETAILED

	United States.	California.	Connecticut.	Georgia.	Illinois.	Indiana.
Materials used—Continued.						
82 Calfskins (russet, ooze, kangaroo, dongola calf, etc.)—						
83 Square feet.....	91,290,110	121,658	117,955	2,620	1,744,440	322,295
Cost.....	\$16,209,143	\$23,584	\$25,060	\$685	\$316,430	\$61,214
84 Patent and enamel leather—						
85 Square feet.....	47,720,221	58,566	94,690	2,348	722,689	29,216
Cost.....	\$12,053,512	\$15,018	\$32,355	\$577	\$191,675	\$6,165
86 Goatskins—						
87 Square feet.....	197,044,004	248,505	742,788	257,050	4,543,367	49,815
Cost.....	\$30,398,403	\$54,363	\$148,309	\$31,207	\$798,768	\$8,652
88 Sheep leather used for uppers—						
89 Square feet.....	36,473,154	119,482	547,488	1,870	434,953	.....
Cost.....	\$2,879,270	\$10,820	\$72,405	\$147	\$29,714	.....
90 All other upper leather—						
91 Square feet.....	73,012,064	558,040	60,400	69,870	2,217,397	6,250
Cost.....	\$12,587,285	\$106,773	\$15,645	\$14,111	\$450,904	\$1,000
92 Materials, other than leather, used for uppers, cost.....	\$1,956,146	\$1,787	\$85,622	\$60	\$85,192	\$12
93 Linings and trimmings, all kinds, cost.....	\$10,561,367	\$28,092	\$45,169	\$5,661	\$265,136	\$9,110
94 Cut soles, counters, taps, heels, etc., purchased, cost.....	\$24,143,824	\$31,867	\$75,964	\$4,712	\$486,887	\$10,328
95 Findings, purchased, cost.....	\$13,080,280	\$54,275	\$55,423	\$19,922	\$370,481	\$19,586
96 Fuel.....	\$799,982	\$6,196	\$2,150	\$36,093	\$2,830	.....
97 Rent of power and heat.....	\$410,992	\$4,166	\$2,980	\$499	\$11,324	\$579
98 Mill supplies.....	\$291,243	\$2,296	\$1,622	\$852	\$9,399	\$2,060
99 All other materials.....	\$9,119,836	\$40,271	\$42,186	\$5,861	\$223,254	\$11,204
100 Freight.....	\$1,212,316	\$827	\$4,110	\$6,062	\$40,868	\$839
Products:						
101 Total value.....	\$320,107,458	\$1,677,668	\$1,279,755	\$372,983	\$9,026,238	\$459,700
102 Men's boots and shoes—						
103 Number of pairs.....	83,434,322	495,708	240,744	191,860	3,463,185	120,497
Value.....	\$142,038,632	\$1,252,565	\$312,286	\$236,720	\$6,033,195	\$231,640
104 Boys' and youths' boots and shoes—						
105 Number of pairs.....	21,717,236	116,451	85,336	20,000	691,165	157,420
Value.....	\$24,301,298	\$186,028	\$91,569	\$20,000	\$814,887	\$199,085
106 Women's boots and shoes—						
107 Number of pairs.....	69,470,876	103,558	210,310	100,212	887,707	.....
Value.....	\$98,202,016	\$217,685	\$516,400	\$88,610	\$1,252,152	.....
108 Misses' and children's boots and shoes—						
109 Number of pairs.....	41,416,967	5,545	23,824	20,000	694,140	43,500
Value.....	\$34,056,919	\$6,463	\$37,302	\$12,000	\$550,836	\$28,975
110 Men's, boys', and youths' slippers—						
111 Number of pairs.....	4,403,097	12,916	2,740	.....	43,099	.....
Value.....	\$3,464,561	\$7,010	\$3,491	.....	\$35,812	.....
112 Women's, misses', and children's slippers—						
113 Number of pairs.....	13,115,194	11,722	25,237	.....	218,166	.....
Value.....	\$10,532,271	\$5,217	\$16,407	.....	\$190,099	.....
114 All other kinds—						
115 Number of pairs.....	8,552,343	.....	7,000	23,571	146,000	.....
Value.....	\$3,331,690	.....	\$3,600	\$9,813	\$70,893	.....
116 All other products.....	\$3,327,955	\$1,500	\$298,700	\$4,100	\$78,214	.....
117 Amount received for work done for others.....	\$792,116	\$1,200	.....	\$1,740	\$150	.....
118 Boot and shoe machines leased or held under royalties:						
119 Number.....	18,995	204	115	10	486	60
Total amount paid for leases or royalties (included above in miscellaneous expenses).	\$3,343,425	\$10,920	\$7,328	\$293	\$40,670	\$1,769
Power:						
120 Number of establishments reporting.....	1,116	13	9	5	35	1
121 Total horsepower.....	62,587	241	238	61	2,052	133
Owned—						
Engines—						
Steam—						
122 Number.....	534	3	5	2	16	1
123 Horsepower.....	40,228	145	131	45	1,307	40
Gas or gasoline—						
124 Number.....	115	.....	1	.....	11	3
125 Horsepower.....	2,355	.....	5	.....	192	76
Water wheels—						
126 Number.....	30	.....	.....	.....	.....	.....
127 Horsepower.....	1,580	.....	.....	.....	.....	.....
Water motors—						
128 Number.....	4	.....	.....	.....	.....	.....
129 Horsepower.....	26	.....	.....	.....	.....	.....
Electric motors—						
130 Number.....	536	.....	.....	.....	.....	.....
131 Horsepower.....	6,367	.....	.....	.....	16	.....
132 Other power, horsepower.....	25	.....	.....	.....	214	.....
Rented—						
Electric motors—						
133 Number.....	533	11	3	4	14	4
134 Horsepower.....	5,328	96	27	16	90	17
135 Other kind, horsepower.....	6,672	.....	75	.....	249	.....
136 Furnished to other establishments, horsepower.....	786	.....	.....	.....	41	.....

SUMMARY, BY STATES: 1905—Continued.

Iowa.	Kentucky.	Louisiana.	Maine.	Maryland.	Massachusetts.	Michigan.	Minnesota.	Missouri.	
171,842	63,200	131,800	4,303,134	314,848	47,402,256	212,010	500,000	7,560,719	82
\$30,945	\$3,320	\$31,187	\$729,005	\$58,156	\$8,286,295	\$33,431	\$95,185	\$1,316,869	83
209,167	347,028	65,783	1,644,539	126,619	23,046,359	159,208	247,865	3,461,620	84
\$49,035	\$79,036	\$21,486	\$341,344	\$23,785	\$5,445,339	\$39,617	\$67,430	\$735,118	85
947,595	2,176,241	239,466	9,602,404	971,679	77,496,344	2,526,486	1,555,452	18,566,585	86
\$164,254	\$295,549	\$48,423	\$1,385,831	\$145,383	\$11,404,907	\$459,489	\$307,157	\$2,837,177	87
230,268	69,901	56,140	1,229,237	36,006	16,866,329	114,300	688,233	1,210,644	88
\$16,140	\$4,220	\$3,486	\$93,885	\$2,606	\$1,434,719	\$15,238	\$54,839	\$74,980	89
14,321	863,000	204,538	1,800,677	147,300	42,454,428	284,653	2,040,044	2,626,647	90
\$2,541	\$128,000	\$39,704	\$266,961	\$24,005	\$7,200,430	\$50,117	\$354,484	\$547,212	91
\$18,683	\$6,000	\$11,586	\$212,258	\$22,439	\$701,945	\$2,900	\$21,381	\$77,713	92
\$14,794	\$39,728	\$18,244	\$367,255	\$31,983	\$5,575,695	\$28,903	\$100,231	\$700,895	93
\$70,979	\$48,500	\$22,556	\$1,045,834	\$75,516	\$11,790,130	\$24,280	\$126,933	\$1,724,520	94
\$29,486	\$75,605	\$18,571	\$535,673	\$36,957	\$6,184,912	\$138,505	\$159,214	\$1,054,067	95
\$3,998	\$1,394	\$1,083	\$43,814	\$3,813	\$282,919	\$6,446	\$14,082	\$57,786	96
\$528	\$2,610	\$4,200	\$16,432	\$2,232	\$194,421	\$6,440	\$9,312	\$15,135	97
\$1,287	\$4,130	\$1,589	\$20,319	\$949	\$71,841	\$8,591	\$7,523	\$33,252	98
\$11,807	\$46,420	\$12,912	\$321,828	\$12,172	\$3,916,709	\$64,118	\$100,470	\$618,335	99
\$7,843	\$12,340	\$5,775	\$43,381	\$1,228	\$387,266	\$15,742	\$18,827	\$124,484	100
\$853,990	\$1,29,939	\$620,014	\$12,351,293	\$1,011,393	\$144,291,426	\$3,531,028	\$4,169,732	\$23,493,552	101
115,890	420,707	280,065	5,709,462	64,632	44,878,920	786,602	1,162,677	5,740,729	102
\$225,845	\$409,458	\$576,828	\$8,283,975	\$203,122	\$79,253,195	\$1,531,156	\$2,022,821	\$10,648,182	103
16,363	185,294	2,535	1,048,268	22,036	8,439,461	176,727	387,408	1,819,192	104
\$20,453	\$278,500	\$3,126	\$1,056,345	\$32,787	\$8,677,053	\$231,875	\$576,075	\$2,640,762	105
287,144	805,062	2,825	2,244,921	337,473	28,190,958	716,263	419,591	5,993,114	106
\$526,272	\$864,684	\$3,390	\$2,666,830	\$608,623	\$36,396,276	\$1,415,730	\$676,642	\$7,475,002	107
59,160	388,740	-----	150,182	229,359	12,036,958	229,848	403,546	2,365,017	108
\$59,160	\$376,217	-----	\$112,892	\$149,338	\$9,041,318	\$230,531	\$464,836	\$2,228,909	109
200	-----	820	9,710	1,100	3,549,189	10,910	-----	26,500	110
\$100	-----	\$1,065	\$11,548	\$1,452	\$2,831,040	\$11,860	-----	\$21,200	111
400	-----	88,088	20,224	12,189	8,519,971	77,608	42,000	223,306	112
\$160	-----	\$31,365	\$18,247	\$12,767	\$6,452,162	\$86,626	\$56,700	\$149,673	113
-----	-----	-----	78,820	8,231	1,644,419	14,624	224,238	272,000	114
-----	-----	-----	\$112,439	\$2,391	\$538,748	\$11,721	\$167,911	\$51,000	115
\$22,000	-----	\$3,500	\$70,782	\$683	\$410,187	\$11,432	\$204,464	\$274,324	116
-----	\$1,080	\$740	\$18,235	\$250	\$691,447	\$97	\$283	\$4,500	117
88	133	72	947	162	7,354	264	310	1,182	118
\$10,027	\$15,446	\$11,582	\$180,950	\$12,269	\$1,670,827	\$32,527	\$31,520	\$233,419	119
5	8	7	41	12	437	18	13	34	120
263	294	169	2,744	176	20,597	696	1,033	7,371	121
5	3	1	30	2	175	11	5	29	122
253	115	50	2,017	60	14,028	410	500	4,385	123
-----	-----	2	2	6	13	3	1	-----	124
-----	-----	8	14	54	120	85	20	-----	125
-----	-----	7	-----	-----	1	-----	-----	-----	126
-----	-----	225	-----	-----	60	-----	-----	-----	127
-----	-----	1	-----	-----	-----	-----	-----	-----	128
-----	-----	3	4	-----	53	12	17	193	130
-----	26	-----	92	-----	903	47	150	2,227	131
-----	-----	-----	-----	-----	-----	-----	-----	-----	132
1	9	14	16	6	91	19	46	20	133
10	143	111	158	25	1,478	154	363	209	134
-----	10	-----	235	37	4,008	-----	-----	550	135
-----	-----	-----	47	-----	161	-----	-----	-----	136

TABLE 16.—BOOTS AND SHOES—DETAILED

	Nebraska.	New Hamp- shire.	New Jersey.	New York.	North Caro- lina.	Ohio.
1 Number of establishments.....	3	50	51	188	7	62
2 Capital:						
3 Total.....	\$140,700	\$7,931,070	\$3,038,877	\$14,106,058	\$86,220	\$10,230,015
4 Land.....	\$1,200	\$115,075	\$67,150	\$263,820	\$4,775	\$304,304
5 Buildings.....	\$3,000	\$395,183	\$288,266	\$819,496	\$3,830	\$774,788
6 Machinery, tools, and implements.....	\$46,100	\$816,775	\$684,059	\$2,445,143	\$12,000	\$1,891,204
7 Cash and sundries.....	\$90,400	\$6,604,037	\$1,999,402	\$10,572,599	\$65,615	\$7,259,719
8 Proprietors and firm members.....	3	57	48	197	11	45
9 Salaried officials, clerks, etc.:						
10 Total number.....	5	498	233	992	9	988
11 Total salaries.....	\$6,400	\$449,312	\$265,789	\$960,076	\$6,400	\$991,049
12 Officers of corporations—						
13 Number.....	2	21	35	84	2	88
14 Salaries.....	\$3,000	\$66,250	\$87,096	\$199,902	\$1,500	\$264,421
15 General superintendents, managers, clerks, etc.—						
16 Total number.....	3	477	198	908	7	900
17 Total salaries.....	\$3,400	\$383,062	\$178,693	\$760,174	\$4,900	\$726,628
18 Men—						
19 Number.....	2	356	144	615	6	617
20 Salaries.....	\$2,500	\$329,868	\$155,938	\$630,890	\$4,600	\$605,087
21 Women—						
22 Number.....	1	121	54	293	1	283
23 Salaries.....	\$900	\$53,194	\$22,755	\$129,284	\$300	\$121,541
24 Wage-earners, including pieceworkers, and total wages:						
25 Greatest number employed at any one time during the year.....	168	12,226	4,483	19,086	107	15,374
26 Least number employed at any one time during the year.....	125	8,651	3,802	14,087	84	12,268
27 Average number.....	121	10,415	4,192	16,556	89	13,890
28 Total wages.....	\$50,234	\$4,377,351	\$1,753,924	\$7,582,896	\$24,679	\$5,222,723
29 Men 16 years and over—						
30 Average number.....	80	6,921	2,580	10,543	60	7,747
31 Wages.....	\$35,612	\$3,152,517	\$1,297,567	\$5,588,685	\$20,293	\$3,552,857
32 Women 16 years and over—						
33 Average number.....	41	3,379	1,388	5,678	26	5,315
34 Wages.....	\$14,422	\$1,204,935	\$413,518	\$1,941,543	\$4,000	\$1,521,091
35 Children under 16 years—						
36 Average number.....	115	224	224	335	3	828
37 Wages.....		\$19,899	\$42,839	\$52,668	\$386	\$148,775
38 Average number of wage-earners, including pieceworkers, em- ployed during each month:						
39 Men 16 years and over—						
40 January.....	67	7,076	2,568	10,500	52	7,761
41 February.....	67	7,040	2,581	10,738	53	7,852
42 March.....	67	7,043	2,578	10,870	53	7,766
43 April.....	64	6,851	2,586	10,751	54	7,577
44 May.....	65	6,414	2,598	10,474	54	7,499
45 June.....	67	6,650	2,588	10,393	65	7,589
46 July.....	98	6,750	2,583	10,585	65	7,708
47 August.....	97	6,948	2,575	10,702	65	7,855
48 September.....	93	7,021	2,534	10,729	65	7,779
49 October.....	87	7,163	2,557	10,110	65	7,734
50 November.....	91	7,060	2,585	10,250	65	7,819
51 December.....	97	7,036	2,627	10,414	64	7,995
52 Women 16 years and over—						
53 January.....	30	3,460	1,428	5,450	21	5,353
54 February.....	30	3,440	1,391	5,664	21	5,385
55 March.....	30	3,429	1,406	5,758	20	5,361
56 April.....	32	3,344	1,363	5,692	20	5,106
57 May.....	31	3,161	1,399	5,680	20	5,008
58 June.....	32	3,178	1,416	5,690	30	5,185
59 July.....	51	3,328	1,388	5,739	30	5,294
60 August.....	51	3,392	1,391	5,807	30	5,375
61 September.....	48	3,470	1,301	5,843	30	5,370
62 October.....	51	3,529	1,363	5,616	30	5,366
63 November.....	51	3,421	1,385	5,609	30	5,451
64 December.....	55	3,396	1,425	5,588	30	5,520
65 Children under 16 years—						
66 January.....	102	224	224	340	3	741
67 February.....	107	231	231	353	3	734
68 March.....	104	220	220	338	2	715
69 April.....	112	223	223	329	2	758
70 May.....	110	225	225	319	3	798
71 June.....	118	226	226	307	3	976
72 July.....	153	227	227	351	3	1,017
73 August.....	149	225	225	352	3	872
74 September.....	110	213	213	339	3	821
75 October.....	106	218	218	329	3	825
76 November.....	101	226	226	328	4	838
77 December.....	108	230	230	335	4	841
78 Miscellaneous expenses:						
79 Total.....	\$12,773	\$702,798	\$541,174	\$2,256,546	\$9,354	\$2,277,107
80 Rent of works.....	\$2,650	\$51,640	\$19,284	\$211,388	\$840	\$116,362
81 Taxes.....	\$911	\$16,740	\$7,072	\$28,858	\$408	\$57,342
82 Rent of offices, interest, insurance, and all other sundry expenses not hitherto included.....	\$9,212	\$632,703	\$480,400	\$1,979,419	\$8,106	\$2,099,803
83 Contract work.....		\$1,715	\$34,418	\$36,881		\$3,600
84 Materials used:						
85 Total cost.....	\$161,496	\$15,529,993	\$3,841,929	\$19,792,932	\$116,521	\$14,557,515
86 Sole leather, in the side—						
87 Pounds.....	333,820	14,375,382	2,262,043	13,106,464	154,194	9,893,393
88 Cost.....	\$79,160	\$2,711,332	\$715,317	\$2,892,941	\$34,787	\$2,880,999
89 Sole leather, heads, bellies, shoulders, etc.—						
90 Pounds.....	67,936	3,536,710	503,750	1,434,186	31,250	3,326,333
91 Cost.....	\$8,462	\$534,392	\$101,894	\$315,481	\$5,000	\$688,706
92 Split leather, finished—						
93 Pounds.....		679,188	126,240	113,761		301,782
94 Cost.....		\$125,826	\$29,248	\$24,435		\$61,006
95 Rolled splits—						
96 Pounds.....		1,081,423		66,610		585,335
97 Cost.....		\$188,548		\$15,341		\$88,671
98 Calf and kip skins—						
99 Pounds.....	24,400	597,063	84,912	193,570	12,950	343,217
100 Cost.....	\$18,636	\$411,258	\$80,712	\$182,657	\$7,027	\$245,814
101 Grain and other side leather—						
102 Square feet.....	83,110	15,890,155	84,430	10,936,289	124,820	2,421,179
103 Cost.....	\$12,268	\$1,867,034	\$15,803	\$1,631,056	\$19,843	\$344,212

BOOTS AND SHOES.

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SUMMARY, BY STATES: 1905—Continued.

Oregon.	Pennsylvania.	Tennessee.	Texas.	Utah.	Vermont.	Virginia.	Washington.	Wisconsin.	All other states. ¹	
3	119	4	5	4	3	6	5	53	4	11
\$33,756	\$7,197,959	\$173,766	\$56,082	\$130,863	\$518,383	\$975,482	\$182,511	\$3,577,649	\$47,620	2
\$500	\$198,605	\$1,503	\$3,000	\$19,100	\$2,000	\$9,000	\$1,750	\$96,625	\$3,000	3
\$2,397	\$661,184	\$16,998	\$3,500	\$39,500	\$21,121	\$67,000	\$9,000	\$311,914	\$8,000	4
\$10,080	\$1,340,855	\$47,567	\$12,710	\$24,500	\$46,971	\$154,104	\$12,600	\$611,810	\$19,170	5
\$20,779	\$4,997,315	\$107,698	\$36,872	\$47,763	\$448,291	\$745,378	\$159,161	\$2,557,300	\$17,450	6
	177	5	7	1	1			28	2	7
	497	16		3	24	63	12	256	3	8
	\$422,122	\$19,264		\$2,760	\$23,375	\$81,194	\$11,260	\$254,252	\$1,275	9
	49	4				7	1	45		10
	\$110,812	\$8,500				\$19,200	\$1,000	\$70,350		11
	448	12		3	24	56	11	211	8	12
	\$371,310	\$10,764		\$2,760	\$23,375	\$61,994	\$10,260	\$183,902	\$1,275	13
	362	9		3	18	45	9	165	3	14
	\$334,861	\$9,752		\$2,760	\$20,339	\$56,208	\$9,300	\$164,443	\$1,275	15
	86	3			6	11	2	46		16
	\$36,449	\$1,012			\$3,036	\$5,786	\$960	\$19,459		17
27	9,968	248	46	117	268	1,943	137	3,901	72	18
23	7,977	207	42	108	87	1,576	99	2,682	26	19
25	8,878	225	43	109	225	1,738	106	3,226	54	20
\$17,262	\$3,230,443	\$78,319	\$21,722	\$46,601	\$98,417	\$369,138	\$46,978	\$1,247,765	\$23,972	21
24	5,247	136	38	72	126	1,332	78	1,949	37	22
\$16,482	\$2,302,656	\$56,690	\$20,174	\$37,358	\$64,236	\$299,892	\$38,398	\$896,744	\$20,380	23
1	2,978	100	3	32	99	342	28	991	16	24
\$780	\$832,164	\$16,506	\$1,248	\$8,583	\$34,181	\$60,692	\$8,580	\$301,413	\$3,517	25
	533	29	2	5		64		286	1	26
	\$95,623	\$5,123	\$300	\$660		\$8,554		\$49,608	\$75	27
24	5,188	127	38	70	139	1,371	85	1,922	40	28
25	5,279	128	38	70	138	1,377	66	1,921	30	29
27	5,344	130	38	71	143	1,349	66	1,898	36	30
27	5,163	134	38	71	145	1,337	80	1,896	37	31
27	5,252	138	38	70	142	1,336	77	1,836	37	32
23	5,298	139	37	70	146	1,318	76	1,864	37	33
22	5,168	140	37	71	145	1,172	77	1,898	33	34
25	5,267	142	37	72	139	1,276	78	1,987	32	35
	5,228	141	38	72	122	1,299	84	2,007	41	36
22	5,314	139	39	75	118	1,376	83	1,989	40	37
22	5,290	142	39	75	89	1,386	83	2,010	41	38
22	5,173	132	39	77	46	1,387	81	2,057	40	39
1	2,953	55	3	30	103	342	28	975	19	40
1	3,006	54	3	30	108	351	28	968	15	41
1	3,037	56	3	31	105	353	28	962	18	42
1	2,980	58	3	32	107	357	29	934	18	43
1	2,972	61	3	32	107	344	28	966	17	44
1	2,959	61	3	32	107	343	26	998	15	45
1	2,969	64	3	32	109	237	27	978	10	46
1	3,051	66	3	32	101	332	28	1,023	11	47
1	2,895	66	3	32	89	372	30	1,028	19	48
1	3,007	62	3	33	98	364	30	995	16	49
1	2,971	60	3	34	87	353	28	1,037	17	50
1	2,936	57	3	34	67	356	26	1,028	17	51
	608	26	2	5		50		282		52
	643	26	2	5		49		288		53
	600	27	2	5		57		262	2	54
	648	28	2	5		75		296	2	55
	652	30	2	5		71		268	2	56
	655	27	2	5		71		283		57
	679	82	2	5		48		284		58
	693	34	2	5		66		294		59
	703	33	2	5		68		283		60
	649	30	2	5		71		286		61
	634	28	2	5		71		303		62
	612	27	2	5		71		303		63
\$6,363	\$1,014,272	\$53,980	\$7,243	\$2,304	\$45,482	\$72,604	\$28,396	\$474,472	\$6,320	64
\$1,644	\$48,460	\$1,825	\$1,403	\$30	\$1,200	\$2,948	\$4,356	\$28,840	\$2,197	65
\$222	\$7,965	\$735	\$190	\$900	\$558	\$4,085	\$590	\$12,348	\$204	66
\$4,497	\$957,002	\$23,877	\$5,650	\$1,374	\$22,993	\$65,671	\$23,450	\$433,284	\$3,919	67
	\$845	\$27,543			\$20,731					68
\$25,934	\$8,701,463	\$639,664	\$38,561	\$111,883	\$411,127	\$1,915,038	\$121,403	\$4,220,098	\$40,873	69
41,586	5,549,426	1,152,110	19,200	183,668	547,766	841,740	216,774	4,279,877	12,240	70
\$11,136	\$1,494,476	\$219,742	\$6,500	\$44,407	\$102,120	\$209,288	\$62,979	\$954,308	\$4,005	71
	1,138,431	56,747	25,780	16,620		14,033		472,695		72
	\$230,467	\$8,441	\$9,580	\$3,628		\$3,649		\$54,193		73
	357,993	11,000		3,294	70,556	140,100	10,000	114,436		74
	\$73,106	\$1,664		\$400	\$11,995	\$22,416	\$3,000	\$22,869		75
	64,954	25,220						45,915		76
	\$14,107	\$4,203						\$8,318		77
1,200	140,682		3,150	3,856		42,000	6,658	148,589	1,220	78
\$1,100	\$96,234		\$3,185	\$2,276		\$31,500	\$5,419	\$94,338	\$1,615	79
14,000	1,699,598	839,376	2,400	90,883	1,427,915	717,797	34,016	4,229,410	550	80
\$3,000	\$232,658	\$119,836	\$528	\$16,017	\$126,144	\$81,980	\$5,133	\$781,685	\$190	81

¹ Includes establishments distributed as follows: Colorado, 1; Delaware, 1; Indian Territory, 1; Rhode Island, 1.

TABLE 16.—BOOTS AND SHOES—DETAILED

	Nebraska.	New Hamp- shire.	New Jersey.	New York.	North Caro- lina.	Ohio.
Materials used—Continued.						
82 Calfskins (russet, ooze, kangaroo, dongola calf, etc.)—						
83 Square feet.....	9,358	11,143,193	2,024,238	4,122,471	.....	5,955,694
Cost.....	\$1,690	\$1,829,757	\$406,596	\$969,927	.....	\$1,090,884
84 Patent and enamel leather—						
85 Square feet.....	12,260	2,315,058	1,046,874	5,492,544	.....	5,218,808
Cost.....	\$3,588	\$464,546	\$277,173	\$2,169,588	.....	\$1,221,432
86 Goatskins—						
87 Square feet.....	30,240	15,132,606	5,851,851	17,223,795	67,000	19,251,690
Cost.....	\$6,048	\$1,878,258	\$850,467	\$3,160,082	\$10,000	\$3,375,545
88 Sheep leather used for uppers—						
89 Square feet.....	18,328	5,101,781	1,573,110	3,191,158	360	2,579,110
Cost.....	\$1,388	\$359,330	\$107,839	\$261,756	\$30	\$165,613
90 All other upper leather—						
91 Square feet.....	.....	3,479,647	862,436	5,738,941	100,000	3,094,341
92 Cost.....	.....	\$440,802	\$158,423	\$1,205,288	\$14,000	\$464,051
93 Materials, other than leather, used for uppers, cost.....	.....	\$115,899	\$40,735	\$261,135	.....	\$158,574
94 Linings and trimmings, all kinds, cost.....	\$1,806	\$683,683	\$145,860	\$844,726	\$1,037	\$917,846
95 Cut soles, counters, taps, heels, etc., purchased, cost.....	\$6,692	\$2,006,386	\$493,908	\$2,732,713	\$3,500	\$1,202,503
96 Findings, purchased, cost.....	\$11,280	\$948,797	\$258,340	\$1,307,399	\$7,661	\$788,336
97 Fuel.....	\$644	\$79,303	\$24,376	\$91,690	\$999	\$59,118
98 Rent of power and heat.....	\$2,800	\$12,061	\$2,733	\$65,025	.....	\$18,576
99 Mill supplies.....	\$100	\$12,428	\$4,233	\$43,513	\$144	\$16,616
100 All other materials.....	\$4,184	\$737,008	\$117,377	\$1,498,962	\$10,168	\$630,867
Freight.....	\$2,750	\$123,345	\$10,895	\$119,217	\$2,325	\$132,146
101 Products:						
102 Total value.....	\$263,450	\$22,425,700	\$6,977,300	\$34,137,049	\$185,635	\$25,140,220
103 Men's boots and shoes—						
104 Number of pairs.....	116,964	7,835,134	543,657	5,576,787	78,543	1,661,202
105 Value.....	\$241,100	\$10,006,403	\$2,096,535	\$8,471,548	\$127,751	\$3,243,185
106 Boys' and youths' boots and shoes—						
107 Number of pairs.....	3,400	3,614,135	87,104	1,265,183	11,405	1,590,568
108 Value.....	\$5,100	\$3,616,521	\$129,108	\$1,510,097	\$11,994	\$1,938,704
109 Women's boots and shoes—						
110 Number of pairs.....	.....	4,759,444	672,309	7,174,649	11,940	9,797,093
111 Value.....	.....	\$4,470,244	\$855,674	\$14,999,965	\$14,330	\$15,318,723
112 Misses' and children's boots and shoes—						
113 Number of pairs.....	.....	4,581,406	4,513,538	4,993,445	13,453	5,014,436
114 Value.....	.....	\$3,442,745	\$3,297,067	\$4,885,003	\$12,488	\$4,454,444
115 Men's, boys', and youths' slippers—						
116 Number of pairs.....	.....	244,020	33,276	393,968	1,204	25,379
117 Value.....	.....	\$171,054	\$32,802	\$277,680	\$783	\$21,596
118 Women's, misses', and children's slippers—						
119 Number of pairs.....	.....	1,026,288	394,760	1,643,444	.....	166,674
120 Value.....	.....	\$576,706	\$402,498	\$1,645,431	.....	\$160,005
121 All other kinds—						
122 Number of pairs.....	15,000	50,000	29,420	2,779,814	.....	8,064
123 Value.....	\$17,250	\$35,000	\$11,437	\$928,646	.....	\$2,475
124 All other products.....	.....	\$96,027	\$152,179	\$1,403,229	\$17,510	\$1,088
125 Amount received for work done for others.....	.....	\$11,000	.....	\$15,450	\$779	.....
126 Boot and shoe machines leased or held under royalties:						
127 Number.....	28	1,562	586	1,775	12	1,603
128 Total amount paid for leases or royalties (included above in miscellaneous expenses).....	\$5,777	\$191,542	\$94,165	\$334,146	\$3,573	\$243,342
129 Power:						
130 Number of establishments reporting.....	2	48	39	147	5	00
131 Total horsepower.....	85	4,816	1,435	5,952	70	7,431
132 Owned—						
133 Engines—						
134 Steam—						
135 Number.....	.....	40	35	44	1	43
136 Horsepower.....	.....	3,537	1,338	3,372	25	4,085
137 Gas or gasoline—						
138 Number.....	1	.....	4	13	3	26
139 Horsepower.....	50	.....	38	179	20	1,188
140 Water wheels—						
141 Number.....	.....	10	.....	8	1	.....
142 Horsepower.....	.....	667	.....	542	25	.....
143 Water motors—						
144 Number.....	.....	.....	1	1	.....	.....
145 Horsepower.....	.....	.....	10	10	.....	.....
146 Electric motors—						
147 Number.....	.....	10	1	9	.....	145
148 Horsepower.....	.....	275	15	98	.....	1,434
149 Other power, horsepower.....	.....	25	.....	.....	.....	.....
150 Rented—						
151 Electric motors—						
152 Number.....	4	5	4	128	.....	45
153 Horsepower.....	35	122	34	1,048	.....	523
154 Other kind, horsepower.....	190	703	201
155 Furnished to other establishments, horsepower.....	147	10	64	293

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Oregon.	Pennsylvania.	Tennessee.	Texas.	Utah.	Vermont.	Virginia.	Washington.	Wisconsin.	All other states.
	2,590,513 \$478,574	163,316 \$27,738	21,040 \$6,375	94,325 \$10,727	50,572 \$8,092	162,585 \$26,288	3,056 \$580	1,969,972 \$327,569	11,000 \$1,980
	2,584,931 \$685,082	1,050 \$221	8,100 \$2,860	2,650 \$666	5,760 \$1,100	450,646 \$83,396		354,783 \$93,197	11,060 \$2,783
	11,295,685 \$1,807,360	721,066 \$82,198	1,080 \$344	27,518 \$4,700	51,102 \$6,345	5,014,413 \$652,581		2,410,096 \$408,136	42,085 \$6,870
	1,237,830 \$92,854		940 \$87	6,693 \$495	4,800 \$300	196,903 \$14,961		951,290 \$60,938	6,000 \$180
30,000 \$5,761	4,249,180 \$724,259	126,195 \$16,405	17,000 \$4,000	10,336 \$1,421	38,000 \$5,000		160,548 \$31,931	1,741,475 \$311,257	16,400 \$2,200
\$299	\$27,325			\$127	\$26,375	\$44,640		\$33,427	\$331
	\$476,346	\$30,149	\$1,525	\$4,105	\$25,288	\$83,544	\$3,827	\$108,805	\$1,625
\$1,150	\$1,172,530	\$12,058	\$1,100	\$1,846	\$33,650	\$457,638		\$471,030	\$9,254
	\$559,559	\$46,706	\$400	\$10,548	\$27,624	\$106,217	\$6,279	\$241,420	\$5,887
	\$40,802	\$1,340		\$1,678	\$200	\$8,499	\$900	\$24,587	\$1,061
\$540	\$18,956	\$4,510	\$235	\$390	\$2,900		\$915	\$9,563	\$930
\$160	\$19,692	\$3,603	\$82	\$135	\$4,375	\$13,944	\$10	\$6,426	\$72
\$2,276	\$399,790	\$47,866	\$1,500	\$3,710	\$21,153	\$50,424	\$915	\$164,749	\$1,340
\$512	\$57,286	\$12,984	\$260	\$4,607	\$8,466	\$24,073	\$325	\$43,283	\$250
\$54,601	\$14,607,867	\$836,955	\$91,030	\$196,211	\$675,772	\$2,627,244	\$225,738	\$6,513,563	\$80,412
19,630	1,116,021	530,287	18,660	51,546		89,450	59,598	2,064,125	1,040
\$54,601	\$2,027,191	\$654,222	\$72,200	\$101,170		\$137,848	\$151,281	\$3,423,844	\$8,765
	1,035,721	107,098		29,998		216,116	39,985	548,867	
	\$1,167,701	\$118,049		\$44,925		\$203,278	\$73,222	\$654,054	
	3,417,319	2,282	400	11,655	543,874	2,013,468	25	737,567	29,713
	\$6,165,006	\$2,853	\$1,250	\$17,982	\$446,192	\$1,964,797	\$175	\$1,245,516	\$51,013
	4,429,528	5,374		26,730	290,851	297,404		600,983	
	\$3,607,816	\$5,374		\$28,644	\$168,584	\$243,886		\$612,091	
	6,778							41,288	
	\$6,699							\$29,369	
	321,963					94,500		228,654	
	\$359,025					\$66,875		\$302,308	
	3,009,090	50,898					70	186,984	4,000
	\$1,241,966	\$51,296					\$560	\$71,344	\$3,200
	\$22,482	\$1,161	\$4,380	\$3,490	\$60,996	\$10,560		\$174,887	\$100
	\$9,981	\$4,000	\$13,200				\$500	\$150	\$17,334
10	1,065	46	15	36	46	181	28	581	34
\$446	\$125,715	\$5,544	\$2,965	\$876	\$2,801	\$16,597	\$1,177	\$54,807	\$395
2	99	4	3	3	3	6	3	47	4
15	3,255	200	15	500	71	734	31	1,886	23
	2,456	80		465		495		15	
								889	
						1		15	1
	75					20		207	4
								3	

LEATHER,
TANNED, CURRIED, AND FINISHED

LEATHER, TANNED, CURRIED, AND FINISHED.

By ELMORE W. SANDERSON.

The statistics of the manufacture of leather, tanned, curried, and finished, presented in this report for the census of 1905, cover the calendar year ending December 31, 1904, and comparisons are confined chiefly

to the censuses of 1900 and 1905. Table 1, however, is a comparative summary of the industry, 1850 to 1905, with the percentage of increase for each census period.

TABLE 1.—COMPARATIVE SUMMARY, WITH PER CENT OF INCREASE: 1850 TO 1905.

	CENSUS.							PER CENT OF INCREASE.					
	1905 ¹	1900	1890	1880	1870	1860	1850	1900 to 1905	1890 to 1900	1880 to 1890	1870 to 1880	1860 to 1870	1850 to 1860
Number of establishments.....	1,049	1,306	1,787	5,628	7,569	5,188	6,686	² 19.7	² 26.9	² 68.2	² 25.6	45.9	² 22.4
Capital.....	\$242,584,254	\$173,977,421	\$98,088,698	\$73,383,911	\$61,124,812	\$39,025,620	\$22,774,795	39.4	77.4	33.7	20.1	56.6	71.4
Salaried officials, clerks, etc., number.....	3,251	2,442	³ 2,635	(⁴)	(⁴)	(⁴)	(⁴)	33.1	² 7.3	.....	.....	.....	.....
Salaries.....	\$4,451,906	\$3,158,842	³ \$2,735,890	(⁴)	(⁴)	(⁴)	(⁴)	40.9	15.5	.....	.....	.....	.....
Wage-earners, average number.....	57,239	52,109	42,392	40,282	35,243	26,246	25,595	9.8	22.9	5.2	14.3	34.3	2.5
Total wages.....	\$27,049,152	\$22,591,091	\$21,249,989	\$16,503,828	\$14,505,775	\$8,175,508	\$6,541,678	19.7	6.3	28.8	13.8	77.4	25.0
Men 16 years and over.....	54,517	50,402	41,733	39,081	34,423	25,858	25,129	8.2	20.8	6.8	13.5	33.1	2.9
Wages.....	\$26,321,552	\$22,140,234	\$21,094,335	(⁴)	(⁴)	(⁴)	(⁴)	18.9	5.0	.....	.....	.....	.....
Women 16 years and over.....	1,814	1,173	264	475	353	388	466	54.6	344.3	² 44.4	34.6	² 9.0	² 16.7
Wages.....	\$525,031	\$339,167	\$82,699	(⁴)	(⁴)	(⁴)	(⁴)	54.8	310.1	.....	.....	.....	.....
Children under 16 years.....	908	534	395	726	467	(⁴)	(⁴)	70.0	35.2	² 45.6	55.5	.....	.....
Wages.....	\$202,569	\$111,690	\$72,955	(⁴)	(⁴)	(⁴)	(⁴)	81.4	53.1	.....	.....	.....	.....
Miscellaneous expenses.....	\$12,498,501	\$7,023,416	\$5,397,672	(⁵)	(⁵)	(⁵)	(⁵)	78.0	30.1	.....	.....	.....	.....
Cost of materials used.....	\$191,179,073	\$155,000,004	\$122,946,721	\$156,384,117	\$118,569,634	\$49,812,659	\$26,429,881	23.3	26.1	² 21.4	31.9	138.0	88.5
Value of products, including custom work.....	\$252,620,986	\$204,038,127	\$172,136,092	\$200,264,944	\$157,237,597	\$75,698,747	\$43,457,898	23.8	18.5	² 14.0	27.4	107.7	74.2

¹ Exclusive of the statistics of 12 establishments engaged primarily in the manufacture of other products. These establishments made leather to the value of \$154,932.

² Decrease.

³ Includes proprietors and firm members, with their salaries; number only reported in 1900 and 1905, but not included in this table.

⁴ Not reported separately.

⁵ Not reported.

During the fifty-five years covered by this table the capital increased nearly tenfold, the number of wage-earners more than doubled, and the total wages increased more than threefold. Capital made the greatest gain, and the total wages paid increased proportionately more than the number of wage-earners. At the census of 1905 compared with that of 1850 the increase in the value of products was \$209,163,088, or 481.3 per cent, and the total value reported was over a quarter of a billion dollars. There has thus been a substantial increase since 1850 in every item except number of establishments.

Table 2 shows the amount of capital in land; buildings; machinery, tools, and implements; and cash and sundries, with the percentage that each item forms of the totals for 1900 and 1905.

TABLE 2.—Capital, with per cent each item is of total: 1905 and 1900.

	1905		1900	
	Amount.	Per cent of total.	Amount.	Per cent of total.
Total.....	\$242,584,254	100.0	\$173,977,421	100.0
Land.....	9,842,911	4.0	14,179,485	8.2
Buildings.....	35,684,642	14.7	20,785,412	11.9
Machinery, tools, and implements.....	32,889,457	13.6	15,022,239	8.6
Cash and sundries.....	164,167,244	67.7	123,990,285	71.3

Capital in land shows a decrease both in amount and percentage; that in buildings, and in machinery, tools, and implements, an increase; and that in cash and sundries, an increase in amount but a slight decrease in the percentage of total.

The number of salaried officials, clerks, etc., increased 809, or 33.1 per cent, and formed 4.5 per cent of all employees in 1900 and 5.4 per cent in 1905. Their salaries increased \$1,293,064, or 40.9 per cent, and formed 12.3 per cent of the total for salaries and wages combined in 1900 and 14.1 per cent in 1905. The number of wage-earners increased 5,130, or 9.8 per cent, and their wages \$4,458,061, or 19.7 per cent. The average number of wage-earners per establishment was 40 in 1900 and 55 in 1905, an increase of 15, or 37.5 per cent, and the average amount paid for wages was \$17,298 in 1900 and \$25,786 in 1905, an increase of \$8,488, or 49.1 per cent.

Of the 52,109 wage-earners reported in 1900, men formed 96.7 per cent, women 2.3 per cent, and children 1 per cent. Of the 57,239 reported in 1905, men formed 95.2 per cent, women 3.2 per cent, and children 1.6 per cent. The small proportion of women and children is due to the fact that the character of the work and the atmosphere surrounding tanneries make their exclusion almost a necessity. Those employed work chiefly in goatskin factories, in which they trim, season, glaze, and tend measuring machines, etc. Out of a total of 2,722 women and children employed in the industry, as shown by Table 12, Delaware reported 911 and Pennsylvania 1,085; both states are large producers of glazed kid. The balance of 726 was scattered among 21 other states, only 2 of which reported a hundred women and none as many as a hundred children.

The greatest number of wage-earners employed at any one time during the year was 68,464 and the least number, 46,740. The largest average number employed in any one month was 57,718, in the month of March, and the smallest 56,121, in the month of January.

Miscellaneous expenses increased \$5,475,085, or 78 per cent. Table 3 shows the items comprising these expenses, for 1900 and 1905, with the proportion each bears to the total.

TABLE 3.—Miscellaneous expenses, with per cent each item is of total: 1905 and 1900.

	1905		1900	
	Amount.	Per cent of total.	Amount.	Per cent of total.
Total.....	\$12,498,501	100.0	\$7,023,416	100.0
Rent of factory or works.....	358,822	2.9	270,310	3.8
Taxes.....	670,441	5.4	593,990	8.5
Rent of offices, interest, insurance, advertising, etc.....	10,588,070	84.7	6,105,720	86.9
Contract work.....	881,168	7.0	53,396	0.8

The following is a tabular statement of the total increase in value of materials, with the amount and percentage of increase of each of the several classes,

and the proportion of each class to total cost of materials for 1900 and 1905:

	INCREASE.		PER CENT OF TOTAL.	
	Amount.	Percent.	1905	1900
Total.....	\$36,179,069	23.3	100.0	100.0
Hides and skins.....	21,921,956	17.7	76.1	79.7
Tanning, currying, and finishing materials	12,218,321	44.5	20.8	17.7
Fuel, rent of power and heat, mill supplies, all other materials, and freight..	2,038,792	51.2	3.1	2.6

The proportionate cost of hides and skins was a little less for 1905 than in 1900 and that of the other two classes of materials correspondingly more; the proportionate increase in the cost of hides and skins was also much the smallest.

Table 4 shows the materials used, by kind, quantity, and cost, and the number of establishments reporting the different kinds.

TABLE 4.—Materials used, by kind, quantity, and cost, with number of establishments reporting: 1905.

KIND.	Number of establishments.	Unit of measure.	Quantity.	Cost.
Materials used, total cost.....				\$191,179,073
Hides and skins:				
Hides, all kinds.....	669	Number	17,581,613	89,126,593
Calf and kip skins.....	192	Number	12,481,221	15,725,616
Coltskins.....	19	Number	1,336,848	2,007,160
Goatskins.....	119	Number	47,665,603	26,756,012
Sheepskins.....	204	Number	27,492,359	10,547,883
All other skins.....	64	Number	1,649,033	1,304,661
Tanning materials:				
Hemlock bark.....	301	Cords	1,000,328	8,471,292
Oak bark.....	406	Cords	422,269	3,765,509
Gambier.....	186	Bales	80,610	752,347
Hemlock bark extract.....	107	Barrels	21,766	265,665
Oak bark extract.....	219	Barrels	214,391	2,300,395
Quebracho.....	281			2,490,487
Sumac.....	169	Tons	7,958	338,614
Chemicals.....	383			2,847,441
All other materials used in tanning.....	512			3,798,244
Currying and finishing materials:				
Rough leather, purchased rough.....	72	Sides	2,414,102	8,136,661
Rough grains, purchased rough.....	17	Sides	342,332	980,260
Rough splits, purchased rough.....	31	Sides	1,365,720	1,108,243
All other rough leather, purchased rough.....	25			627,491
Oil, stearin, degreas, tallow, and all other materials used in currying.....	670			3,807,186
Fuel, rent of power and heat, mill supplies, all other materials, and freight.....				6,021,313

The number of establishments severally given in Table 4 is the number reporting each class of material; hence many establishments are counted several times.

Hides to the number of 17,581,613 were reported as used by 669 establishments at a cost of \$89,126,593, or 46.6 per cent of the total cost of materials. As compared with the census of 1900, there was an increase of 1,742,751 in the number of hides and of \$11,341,833 in their cost. Hides were converted chiefly

into sole, grain, harness, belting, carriage, and furniture leather, but some were sold in the rough.

There were 90,625,064 skins used, which cost \$56,341,332, an increase of 6,754,583, or 8.1 per cent, in their number and of \$10,580,123, or 23.1 per cent, in their cost. The proportion which the principal kinds of skins used formed of the total number and cost of skins is shown in the following tabular statement:

	Per cent of total number.	Per cent of total cost.
Goatskins.....	52.6	47.5
Calf and kip skins.....	13.8	27.9
Sheepskins.....	30.3	18.7
Colt and other skins.....	3.3	5.9

The amount paid for tanning materials of all kinds was \$25,029,994, or 13.1 per cent of the total cost of materials. Of this amount, hemlock bark, the largest single item, formed 33.8 per cent; oak bark, only 15 per cent, although used by the largest number of establishments, and tanning extracts 10.3 per cent. The use of hemlock and oak bark extracts has increased greatly since 1900, as the total cost reported for that year was \$700,979 and for 1905, \$2,566,060—an increase of \$1,865,081, or 266.1 per cent. The increase in the total cost of tanning, currying, and finishing materials, was

\$12,218,321, and of this amount the increase in “extracts” formed 15.3 per cent, the great increase in the use of which is due partly to the compact form in which they can be shipped, thus enabling a considerable saving in the cost of transportation. As much of the quebracho, the use of which has increased because of its efficacy and cheapness, is in the form of extract, the actual increase in the use of extracts is much greater, even, than the given figures indicate. Although the cost of vegetable tanning materials was much greater than that of any other kind, the cost of chemicals reported was somewhat more than 10 per cent of the total cost of tanning materials, and their use was reported by 383 tanneries.

Currying and finishing materials cost \$14,659,841, or 7.7 per cent of the total cost of all materials. Of these, rough leather purchased rough was the largest item, though reported by only 72 establishments; and oil, tallow, etc., the next largest item, was reported by 670 establishments. The amount paid for fuel, freight, etc., formed only 3.1 per cent of the total cost of materials. In the cost of fuel, tanneries effect a large saving by drying the spent bark that comes from the leaches and using it in the furnaces along with coal and wood.

Table 5 is a comparative summary of the principal statistics of the industry, by states, for 1900 and 1905.

MANUFACTURES.

TABLE 5.—COMPARATIVE SUMMARY.

	STATE.	Cen- sus.	Number of estab- lish- ments.	Capital.	SALARIED OF- FICIALS, CLERKS, ETC.		WAGE-EARNERS AND WAGES.		Miscella- neous ex- penses.	COST OF MATERIALS USED.				PRODUCTS. Aggregate value.
					Num- ber.	Salaries.	Average number.	Wages.		Total.	Hides and skins.	Tanning, currying, and finish- ing mate- rials.	Fuel, rent of power and heat, mill sup- plies, all other materials, and freight.	
1	United States...	1905	1,049	\$242,584,254	3,251	\$4,451,906	57,239	\$27,049,152	\$12,498,501	\$191,179,073	\$145,467,925	\$39,689,835	\$6,021,313	\$252,620,986
2		1900	1,306	173,977,421	2,442	3,158,842	52,109	22,591,091	7,023,416	155,000,004	123,545,969	27,471,514	3,982,521	204,038,127
3	Alabama	1905	4	946,282	7	8,896	261	77,026	79,878	606,402	453,663	112,572	40,167	844,403
4		1900	18	464,005	8	7,200	165	71,440	44,107	672,017	564,795	84,773	22,449	1,005,353
5	Arkansas ¹	1900	3	2,190	.....	.....	3	750	37	3,590	2,835	635	120	5,859
6	California	1905	49	6,368,078	116	183,583	1,515	945,051	277,474	5,912,140	4,592,459	1,170,716	148,965	8,072,257
7		1900	45	4,820,205	75	106,458	1,454	870,973	180,795	5,809,428	4,395,363	1,290,115	117,950	7,405,981
8	Connecticut	1905	9	894,079	21	28,270	169	81,633	44,739	542,660	388,030	131,174	23,456	748,038
9		1900	7	639,408	12	13,506	179	90,058	23,087	681,399	516,145	144,168	21,086	891,478
10	Delaware	1905	20	6,645,852	192	250,583	2,836	1,176,061	291,267	7,910,779	6,899,431	753,100	258,248	10,250,842
11		1900	20	5,178,804	156	166,139	2,457	1,044,903	226,083	7,027,715	6,160,096	668,902	198,717	9,400,504
12	Georgia	1905	29	2,406,238	24	29,446	533	153,956	41,183	1,887,156	1,505,015	319,825	62,316	2,382,127
13		1900	36	1,434,390	26	20,413	410	92,030	24,724	928,129	747,913	138,999	41,217	1,187,697
14	Illinois	1905	28	11,649,246	97	134,674	2,770	1,326,440	427,961	8,173,788	7,109,142	888,352	176,294	10,758,196
15		1900	27	4,751,474	86	176,646	2,263	1,145,170	181,350	5,784,474	4,936,454	679,967	168,053	7,847,835
16	Indiana	1905	13	1,247,656	18	20,384	265	133,701	45,655	764,318	628,368	121,983	13,967	1,050,945
17		1900	23	1,321,455	27	26,872	400	161,942	61,747	1,187,397	907,091	262,251	18,055	1,589,802
18	Kentucky	1905	20	4,428,693	62	89,611	728	326,696	266,140	2,807,259	2,151,197	563,116	92,946	3,952,277
19		1900	23	4,681,389	53	61,063	810	321,658	112,659	2,881,896	2,336,136	482,022	63,738	3,757,016
20	Louisiana ²	1900	3	6,193	.....	.....	4	1,341	78	6,355	5,800	472	83	10,157
21	Maine	1905	27	1,464,735	29	31,232	515	236,987	65,473	1,973,701	1,580,501	315,189	78,011	2,500,146
22		1900	31	1,376,106	36	26,798	587	228,268	102,332	1,943,204	1,562,672	322,239	58,293	2,451,713
23	Maryland	1905	17	2,018,666	24	36,587	531	217,579	66,919	1,482,680	992,750	373,879	116,051	1,911,348
24		1900	22	1,088,725	13	17,429	455	156,182	40,860	1,411,457	1,197,109	191,521	22,827	1,754,102
25	Massachusetts	1905	132	27,070,206	526	686,334	9,074	4,556,327	1,942,733	23,040,897	16,676,365	5,153,271	1,211,261	33,352,999
26		1900	119	15,317,940	355	405,648	7,010	3,379,698	662,553	19,793,757	14,451,069	4,817,175	525,513	26,067,714
27	Michigan	1905	25	6,860,797	92	146,745	1,747	865,673	449,649	7,271,023	5,805,403	1,293,143	172,477	9,340,349
28		1900	27	5,214,042	72	95,507	1,427	559,142	248,297	4,697,367	3,912,727	666,943	117,697	6,015,590
29	Minnesota	1905	9	82,260	2	2,400	40	19,350	3,016	88,016	66,278	12,961	8,777	132,533
30		1900	9	23,060	.....	.....	18	3,550	483	9,803	4,587	4,209	1,007	19,336
31	Mississippi ²	1900	4	2,460	.....	.....	1	240	13	2,202	1,862	340	.....	3,556
32	Missouri	1905	9	1,345,163	21	37,344	217	131,212	75,530	734,478	564,627	152,651	17,200	1,128,382
33		1900	9	922,083	20	35,360	185	98,578	27,846	557,131	441,043	102,150	13,938	816,720
34	New Hampshire	1905	8	1,516,497	51	66,103	492	215,101	100,454	1,326,376	524,999	761,310	40,067	1,773,611
35		1900	12	1,900,277	51	54,275	552	219,292	145,003	2,053,367	937,947	962,475	152,945	2,664,942
36	New Jersey	1905	73	12,492,373	342	500,917	4,953	2,793,327	873,542	15,272,124	7,852,411	6,828,241	591,472	21,495,329
37		1900	77	9,906,119	276	412,847	4,178	2,057,197	507,753	9,532,507	7,068,592	2,172,978	290,937	13,747,155
38	New York	1905	118	24,037,904	241	340,309	5,444	2,485,162	980,851	16,274,903	12,774,019	2,897,967	602,917	21,642,945
39		1900	147	19,062,817	193	264,724	6,530	2,775,115	558,470	17,424,300	13,803,145	3,041,022	520,133	23,205,991
40	North Carolina	1905	34	2,568,965	37	61,265	534	149,258	93,209	2,038,036	1,670,867	310,569	56,600	2,662,174
41		1900	75	1,299,798	28	29,259	366	105,132	32,685	1,129,402	953,635	133,766	42,011	1,502,378
42	Ohio	1905	40	6,915,341	94	142,455	1,610	839,171	336,888	4,462,093	3,524,131	717,057	220,905	6,512,754
43		1900	58	5,822,580	74	80,680	1,384	617,409	160,315	3,774,298	3,018,710	691,532	64,056	5,182,065
44	Oregon	1905	11	272,048	.....	.....	94	67,365	11,115	366,757	285,764	66,035	14,958	484,673
45		1900	16	173,144	1	900	53	27,532	4,551	190,184	146,196	39,115	4,873	249,728
46	Pennsylvania	1905	205	72,972,114	754	927,434	14,413	6,417,750	4,049,820	55,411,927	43,129,248	11,083,860	1,198,819	69,427,852
47		1900	254	57,320,227	506	643,895	13,396	5,457,518	2,432,724	42,403,503	34,460,237	7,010,702	932,564	55,615,009
48	Rhode Island	1905	6	252,972	8	14,080	87	48,275	13,320	228,471	193,867	29,553	5,051	346,647
49		1900	5	157,900	6	7,930	69	32,092	5,832	207,317	175,176	28,975	3,166	292,939
50	South Carolina	1905	3	17,080	1	200	4	1,286	99	6,342	4,800	1,354	188	10,822
51		1900	5	5,595	.....	.....	10	2,000	525	12,743	9,986	2,500	257	18,387
52	Tennessee	1905	29	4,013,289	40	63,736	736	251,665	140,511	2,851,259	2,226,410	496,973	127,876	3,583,871
53		1900	44	3,444,197	29	35,496	803	239,870	91,197	2,184,311	1,888,653	228,113	67,545	2,802,117
54	Texas	1905	5	23,400	2	1,100	22	8,242	1,259	34,986	28,600	5,606	780	61,225
55		1900	11	24,763	2	1,300	29	9,216	1,158	52,207	41,093	9,728	1,386	76,508
56	Utah ²	1900	4	8,625	.....	.....	3	1,500	215	3,482	2,250	1,150	82	5,863
57	Vermont	1905	4	201,466	7	6,040	60	27,066	25,136	277,286	229,644	46,612	1,030	342,312
58		1900	8	160,906	5	5,450	68	31,225	10,694	300,162	248,915	44,640	6,607	365,069
59	Virginia	1905	44	4,635,224	71	95,032	1,055	357,699	253,094	4,719,206	3,890,761	735,829	92,616	5,829,812
60		1900	65	4,032,387	59	84,602	889	313,677	252,548	3,695,817	3,101,034	497,654	97,129	4,716,920

¹ None reported in 1905.² Included in all other states in 1905.

LEATHER, TANNED, CURRIED, AND FINISHED.

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BY STATES: 1905 AND 1900.

PRODUCTS—continued.

Leather, sold in the rough.		Sole leather.		Upper leather.				Goatskins (tanned and finished).		Sheepskins (tanned and finished).		Harness leather.		All other leather, all other products, and custom work (value).		
				Total value.	Calf and kip skins.		All other (value).									
					Number.	Value.	Number.	Value.	Number.	Value.	Sides.	Value.				
4,678,292	\$10,180,949	17,937,938	\$69,205,600	\$52,784,265	12,355,765	\$23,372,365	\$29,411,900	45,691,492	\$37,887,349	20,597,598	\$11,168,829	4,369,561	\$20,274,188	\$51,119,806	1	
4,229,634	6,864,345	15,472,072	55,481,625	41,848,552	8,855,983	15,693,596	26,154,956	47,043,932	35,672,981	20,290,985	8,353,755	3,444,616	16,712,056	39,104,813	2	
3,040	7,818	128,898	800,384	3,496	863	1,536	1,960	1,013	864	425	225	2,650	33,570	10,437	3	
		218,790	974,000										9,030	9,925	4	
				950	150	120	830	100	60	150	45	2,000	4,500	304	5	
140,655	352,799	575,393	2,971,579	356,631	106,571	241,728	114,903	3,000	12,000	1,012,816	341,262	339,041	1,904,647	2,133,339	6	
130,595	309,405	556,063	2,532,988	345,597	122,152	195,124	150,473	6,400	6,040	1,135,250	318,900	379,323	1,976,755	1,916,296	7	
14,417	5,055			3,120			3,120			48,000	40,000	4,378	16,648	683,215	8	
20,392	24,470			8,340			8,340					1,201	5,142	853,526	9	
27,496	56,066	44,020	77,238	119,980	110	285	119,695	10,928,313	9,102,297	463,404	281,754			669,573	10	
				132,000			132,000	9,363,769	8,634,800	175,272	61,921			515,717	11	
20,848	41,051	314,435	1,493,979	14,940	2,525	6,158	8,782	825	1,314	212	64	253,575	700,040	130,739	12	
71,502	161,091	57,952	300,985	135,112	35,262	67,877	67,235	2,590	2,323	31,150	10,312	56,200	226,132	351,742	13	
128,100	59,460	123,198	585,000	6,417,631	2,293,950	4,741,324	1,676,307			1,696,713	964,099	53,674	267,890	2,464,116	14	
150,976	74,470	68,324	310,296	5,225,588	1,455,154	3,034,367	2,191,221			1,263,323	540,193	34,303	170,000	1,527,288	15	
15,000	12,000	10,600	61,800	1,150	250	1,150				50	50	231,192	877,353	98,592	16	
31,000	15,250			43,520	16,507	42,865	655			10,335	5,606	193,777	1,011,613	513,813	17	
54,160	261,930	393,805	2,117,495	12,933	5,033	12,850	83	636	393	42,734	23,951	187,632	1,075,228	460,347	18	
14,014	67,071	442,975	2,314,779	1,000			1,000	100	70	88,961	44,410	206,748	1,091,901	237,785	19	
				1,267	700	767	500	300	200	6,000	3,000	100	500	5,190	20	
5,000	5,025	484,600	1,493,440	141,751	1,271	3,072	138,679			2,032,800	587,416			272,514	21	
3,450	3,104	685,659	1,451,679	358,708	5,127	9,396	349,312			1,940,870	472,520	230	950	164,752	22	
11,356	49,164	126,034	622,360	269,806	41,760	64,539	205,267	30,000	24,000	112,750	84,200	11,765	68,249	793,569	23	
125,760	260,350	48,310	221,476	424,172	132,738	209,940	214,232	41,000	23,750	330,890	137,400	16,634	91,039	595,915	24	
136,808	179,152	137,110	429,236	15,321,936	4,041,330	7,463,088	7,858,848	6,878,955	5,277,991	6,892,980	3,900,146			8,244,538	25	
254,889	293,434	69,980	267,500	11,292,310	2,248,254	4,017,224	7,275,086	8,956,118	6,012,205	8,590,563	3,636,839	4,600	14,800	4,550,626	26	
202,402	72,447	1,353,293	4,954,749	1,938,788	312,591	512,333	1,426,455			593,964	218,634	195,695	854,690	1,301,041	27	
122,757	128,426	914,954	3,090,684	818,038	150	150	817,888			617,423	234,336	177,846	754,274	754,274	28	
68	340	12,000	61,000	14,162	40	32	14,130	22	11	300	350	6,310	25,310	31,360	29	
700	1,600	115	345	1,615	300	410	1,205	20	10	1,124	773	655	2,995	11,998	30	
		50	125	2,800	100	250	2,550	200	181			100	450		31	
		232	1,392	500	371	500		170	204	52	78	124,219	675,019	453,285	32	
										629	522	72,386	387,467	426,635	33	
2,071	1,168			359,480	3,112	8,540	350,940	420,000	225,000	136,836	59,922	70,984	186,470	942,739	34	
				218,149	21,406	44,824	173,325	258,108	200,928	1,153,904	434,915	87,214	189,826	1,619,956	35	
798,673	873,093			2,404,056	96,992	172,550	2,231,506	3,481,123	3,161,780	1,228,500	743,802	75,242	405,219	13,907,379	36	
329,751	453,053			2,255,070	539,350	999,235	1,255,835	4,969,191	3,061,738	454,988	283,012	33,865	177,846	7,516,436	37	
567,019	836,408	1,385,986	4,977,072	6,724,150	1,122,832	1,662,513	5,061,637	1,033,155	922,035	4,768,772	3,049,763	184,182	995,947	4,137,570	38	
679,928	1,130,248	1,446,242	4,655,818	8,346,177	990,213	1,442,322	6,903,855	1,801,518	1,898,957	2,997,036	1,360,885	146,341	765,500	5,048,406	39	
356,700	1,451,455	74,883	398,996	38,114	3,395	5,519	32,595	1,166	856	1,295	430	50,699	188,139	584,784	40	
105,857	475,810	31,389	124,449	71,857	11,579	18,743	53,114	2,046	1,212	3,089	1,214	29,156	989,832	738,652	41	
150,393	181,347	148,804	954,869	895,869	503,687	883,379	12,490	3,500	2,500	24,360	10,224	309,434	1,860,772	2,607,173	42	
65,060	38,617	134,962	1,016,048	55,648	27,421	44,225	11,423	1,500	1,775	86,670	39,535	336,015	1,831,651	2,198,791	43	
15,250	42,670	60	300	5,940	3,430	5,700	240	80	200	200	100	47,080	235,215	200,248	44	
2,586	1,456	500	3,030	7,970	4,099	7,597	373	252	250	2,365	1,140	31,579	142,790	93,092	45	
822,608	2,298,589	9,476,139	33,553,676	4,715,006	243,956	621,863	4,093,143	22,909,407	19,156,181	1,090,180	567,879	518,178	2,989,450	6,147,071	46	
666,080	1,318,801	8,183,522	28,691,603	2,699,743	419,593	641,955	2,057,788	21,602,961	15,796,782	1,090,822	600,423	450,352	2,491,722	4,015,935	47	
				8,600	2,467	8,600				230,400	140,200			197,847	48	
200	1,000			22,615	9,800	22,615				201,600	106,500			162,824	49	
		50	250	350			350					4,250	10,100	122	50	
3,360	8,400	50	125	630	220	290	340	50	25	125	52	2,850	8,355	100	51	
169,748	656,918	229,568	1,219,860	141,777	1,014	2,225	139,552	943	509	6,094	3,183	49,111	124,070	1,437,554	52	
211,749	557,948	205,942	1,086,284	19,068	6,494	11,753	7,315	382	305	3,471	1,756	53,105	195,263	941,493	53	
3,334	10,000	400	1,200									8,900	33,750	16,275	54	
3,000	450	1,022	3,752	3,494	400	730	2,764	975	886	12,249	5,657	5,165	19,875	42,394	55	
		600	1,975	2,875	210	400	2,475					230	1,000	13	56	
55,552	182,292			75			75			1,000	1,200	25,337	150,264	8,481	57	
102,200	160,300			186,978	400	600	186,378			700	900	575	3,311	13,610	58	
345,278	1,590,818	563,907	2,926,054	6,348	1,494	3,439	2,909			55,951	28,108	35,235	130,563	1,147,921	59	
128,378	489,642	409,166	2,189,099	15,451	2,594	4,434	11,017	23	24	16,235	10,790	26,350	94,386	1,917,528	60	

MANUFACTURES.

TABLE 5.—COMPARATIVE SUMMARY,

	STATE.	Cen- sus.	Num- ber of estab- lish- ments.	Capital.	SALARIED OF- FICIALS, CLERKS, ETC.		WAGE-EARNERS AND WAGES.		Miscella- neous ex- penses.	COST OF MATERIALS USED.				PRODUCTS. Aggregate value.
					Num- ber.	Salaries.	Average number.	Wages.		Total.	Hides and skins.	Tanning, currying, and finish- ing mate- rials.	Fuel, rent of power and heat, mill sup- plies, all other materials, and freight.	
61	Washington	1905	3	\$37,950	.....	.....	8	\$5,752	\$1,641	\$41,108	\$32,544	\$7,234	\$1,330	\$58,061
62		1900	3	17,600	.....	.....	3	2,125	580	25,701	19,920	4,785	996	32,605
63	West Virginia	1905	33	8,750,696	48	\$88,514	946	434,263	246,136	4,769,123	3,696,392	904,981	167,750	6,061,509
64		1900	46	5,049,615	37	62,889	664	224,444	144,458	2,541,197	2,095,566	389,436	56,195	3,210,753
65	Wisconsin	1905	33	30,409,164	322	457,702	5,556	2,686,904	1,291,921	19,870,887	15,963,629	3,431,564	475,694	25,845,123
66		1900	42	18,283,591	230	314,956	5,262	2,241,861	735,767	16,040,304	13,347,209	2,344,775	348,320	20,074,373
67	All other states	¹ 1905	9	39,820	■	930	24	13,174	1,888	32,892	26,610	3,158	3,124	57,424
68		² 1900	8	63,351	1	600	22	6,963	1,890	31,881	24,008	5,297	2,576	44,877

¹Includes establishments distributed as follows: Colorado, 1; Iowa, 2; Louisiana, 1; Mississippi, 2; North Dakota, 1; South Dakota, 1; Utah, 1.²Includes establishments distributed as follows: Arizona, 1; Iowa, 2; Kansas, 1; Nebraska, 2; South Dakota, 2.

LEATHER, TANNED, CURRIED, AND FINISHED.

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BY STATES: 1905 AND 1900—Continued.

PRODUCTS—continued.														
Leather, sold in the rough.		Sole leather.		Upper leather.				Goatskins (tanned and finished).		Sheepskins (tanned and finished).		Harness leather.		All other leather, all other products, and custom work (value).
				Total value.	Calf and kip skins.		All other (value).							
Sides.	Value.	Sides.	Value.		Number.	Value.		Number.	Value.	Number.	Value.	Sides.	Value.	
				\$7,488	1,872	\$7,488				2,400	\$1,500	7,800	\$34,750	\$14,323 61
				24,900	3,120	3,900	\$21,000			6,400	2,650			5,055 62
83,889	\$311,022	1,262,538	\$5,270,545	3,618	770	1,795	1,823			830	458	57,011	322,249	153,617 63
156,034	447,171	363,954	1,742,354	14,986	2,556	4,777	10,209			2,106	980	95,720	520,322	484,940 64
573,434	687,114	1,091,531	4,231,785	12,858,777	3,564,723	6,940,331	5,918,446	2	\$7	146,755	116,406	1,504,944	6,097,651	1,853,383 65
816,809	377,726	1,630,988	4,500,714	9,104,678	2,797,925	4,862,420	4,242,258	30,471	25,117	46,610	23,904	961,966	4,194,372	1,847,862 66
7,600	20,800	673	3,333	1,789	530	1,789		340	263	7,250	3,650	2,927	10,935	16,654 67
		25	125	3,250	775	2,250	1,000	4,675	4,275	20,250	12,440	840	3,547	21,240 68

Of the 34 states shown separately in Table 5, in only 5 was there an increase in number of establishments, namely: Massachusetts, 13; California, 4; Connecticut, 2; Illinois, 1; and Rhode Island, 1. The net loss was 257, and a decrease of 10 or more is shown for each of the following states: Pennsylvania, 49; North Carolina, 41; New York, 29; Virginia, 21; Ohio, 18; Tennessee, 15; Alabama, 14; West Virginia, 13; and Indiana, 10. The great decrease between 1880 and 1890, as shown in Table 1, is due to the fact that prior to 1890 tanning and currying were treated as separate industries, and an establishment carrying on both processes in the same city or town was counted twice. Beginning with the census of 1890, however, the two processes have been treated as one industry, and under such conditions an establishment doing both is counted but once.

From 1900 to the year 1905, the capital increased \$68,606,833, or 39.4 per cent. Nearly every state contributed toward this increase, only 4 showing a loss, as follows: New Hampshire, \$383,780; Kentucky, \$252,696; Indiana, \$73,799; and Texas, \$1,363. Three states each reported an increase of over \$10,000,000, namely: Pennsylvania, \$15,651,887; Wisconsin, \$12,125,573; and Massachusetts, \$11,752,266.

All states presented in the table show an increase in amount of wages paid except New Hampshire, Vermont, Connecticut, New York, Indiana, South Carolina, and Texas. The state of Massachusetts shows the largest increase, \$1,176,629; Pennsylvania, the next largest with \$960,232; and New Jersey, the third with \$736,130.

PRODUCTS.

Statistics for some of the principal kinds of leather for 1900 and 1905 are shown in Table 5, and Table 6 shows the kind, quantity, and value of products and the number of establishments reporting each kind for 1905.

TABLE 6.—*Products, by kind, quantity, and value, with number of establishments reporting each kind: 1905.*

KIND.	Number of establishments reporting.	Unit of measure.	Quantity.	Value.
Total.....				\$252,620,986
Rough leather, sold in the rough..	145	Sides.....	2,054,281	7,801,249
Rough grains, sold in the rough...	6	Sides.....	258,624	584,418
Rough splits, sold in the rough...	59	Sides.....	2,365,387	1,795,282
Sole leather:				
Oak.....	103	Sides.....	3,607,963	19,157,805
Union.....	39	Sides.....	4,400,011	17,371,780
Hemlock.....	73	Sides.....	9,929,964	32,676,015
Upper leather, other than calf, kip, or colt skins:				
Grain, satin, kangaroo, etc. (side leather).....	98	Sides.....	6,850,469	15,487,252
Finished splits.....	62	Number..	6,205,050	5,993,231
Patent and enameled shoe leather.....	32	Sides.....	1,356,777	3,335,352
Horsehide.....	21	Sides.....	412,367	889,480
Coltskins.....	17	Number..	1,323,211	3,706,585
Calf and kip skins, tanned and finished:				
Flesh finished.....	102	Number..	1,802,338	3,511,784
Grain finished.....	81	Number..	10,211,885	18,996,551
Patent and enameled.....	7	Number..	341,542	864,000
Goatskins, tanned and finished:				
Black.....	95	Number..	40,019,614	32,822,282
Colored.....	34	Number..	5,671,878	5,065,067
Sheepskins, tanned and finished...	172	Number..	20,597,598	11,168,829

TABLE 6.—*Products, by kind, quantity, and value, with number of establishments reporting each kind: 1905—Continued.*

KIND.	Number of establishments reporting.	Unit of measure.	Quantity.	Value.
Belting leather.....	26	Sides.....	859,564	\$4,754,456
Harness leather.....	298	Sides.....	4,369,561	20,274,188
Carriage leather.....	41	Hides.....	622,836	5,453,157
Trunk, bag, and pocketbook leather	38	.....	.....	4,920,750
Bookbinders' leather.....	31	.....	.....	2,283,761
Leather for manufacture of gloves.	45	.....	.....	3,344,614
Furniture leather.....	25	Hides.....	204,268	2,327,647
All other leather, including offal leather.	304	.....	.....	12,180,238
All other products, including by-products, glue stock, etc.	536	.....	.....	7,665,223
Amount charged for tanning, currying, or finishing for others.	251	.....	.....	8,189,960
Custom work, stock tanned or finished for others:				
For tanners, curriers, and finishers—				
Hides tanned.....		Number..	860,918	6,109,481
Skins tanned.....		Number..	2,646,632	1,658,168
Sides curried.....		Number..	331,385	1,046,675
Splits curried.....		Number..	390,366	412,366
Skins curried or finished...		Number..	3,672,590	3,405,291
For others, not tanners, curriers, or finishers—				
Hides tanned.....		Number..	426,096	2,922,995
Skins tanned.....		Number..	13,279,613	8,587,529
Sides curried.....		Number..	1,070,669	2,702,039
Splits curried.....		Number..	341,753	402,813
Skins curried or finished...		Number..	12,208,534	8,821,397

The several products do not in every case cover the entire quantity of each particular kind of leather manufactured. Goatskins are reported separately, and they also enter into the products reported under "leather for manufacture of gloves;" sheepskins, reported separately, are also found under "bookbinders' leather" and "leather for manufacture of gloves;" calfskins of the class of "calf and kip skins" are also found under "bookbinders' leather;" and "patent and enameled leather," although reported separately under "upper leather" and "calf and kip skins," also constitutes a large part of carriage, furniture, and harness leather. The totals for the industry do not include the quantity or value of hides and skins custom tanned, curried, or finished.

Sole leather.—The value of the output of sole leather in 1900 constituted 27.2 per cent of the value of all leather manufactured in the United States; at the census of 1905 it formed 27.4 per cent. The increase in number of hides produced was 2,465,866, or 15.9 per cent, and in value, \$13,723,975, or 24.7 per cent. In 1900 the state of Pennsylvania reported 52.9 per cent and in 1905, 52.8 per cent of the entire quantity of sole leather produced in the United States. During the period the number of sides produced in the state increased 1,292,617, or 15.8 per cent, and the value \$4,862,073, or 16.9 per cent. There is no state comparable with Pennsylvania in the manufacture of sole leather. Michigan, New York, West Virginia, and Wisconsin were the only other states that reported individually a million sides or more in 1905, and their combined total was only slightly more than one-half of the number of sides reported by Pennsylvania. Of the remaining 28 states, shown separately in

Table 5, 18 reported a total of 3,367,778 sides, and 10 states reported none at all.

Of all the sole leather reported in 1905, 77.5 per cent was produced in the group of states consisting of Pennsylvania, New York, Ohio, Maryland, Virginia, West Virginia, Kentucky, Tennessee, and Georgia. The concentration in this section is due to the proximity of hemlock and oak forests, from which is obtained the bark that is used so largely for tanning. Michigan, Wisconsin, Maine, and California produced 19.5 per cent of the sole leather, and the remaining 3 per cent was produced in various other states.

Of the total quantity of sole leather produced, oak leather formed 20.1 per cent of the total number of sides, union 24.5 per cent, and hemlock 55.4 per cent. Of the total value reported, oak leather formed 27.7 per cent, union 25.1 per cent, and hemlock 47.2 per cent.

The following is a summary of establishments that reported sole leather exclusively in 1905:

Number of establishments.....	144
Capital.....	\$92, 215, 661
Salaried officials, clerks, etc., number.....	435
Salaries.....	\$723, 836
Wage-earners, average number.....	10, 789
Total wages.....	\$4, 687, 893
Miscellaneous expenses.....	\$3, 130, 982
Cost of materials used.....	\$54, 698, 223
Value of products.....	\$64, 841, 056

The tanning of sole leather is practically a separate industry, as the establishments summarized in this table reported in 1905, 93.7 per cent of the value of all such leather tanned in the United States.

Rough leather.—At the census of 1905 compared with that of 1900 rough leather, sold in the rough, showed an increase in value of \$3,316,604, or 48.3 per cent. Of the 6 leading states in value of products, Pennsylvania ranked first at both censuses and showed an increase of \$979,788, or 74.3 per cent. Virginia ranked second in 1905 and fourth in 1900, with an increase of \$1,101,176, or 244.9 per cent, in value of products; North Carolina was third in 1905 and fifth in 1900, the increase being \$975,645, or 205 per cent; New Jersey was fourth in 1905 and sixth in 1900, with an increase of \$420,040, or 92.7 per cent; New York was fifth in 1905 and second in 1900, the value of products having decreased \$293,840, or 26 per cent; and Wisconsin, the state holding sixth rank in 1905, was eighth in 1900, the increase being \$309,388, or 81.9 per cent.

Upper leather.—Upper leather, as shown in Table 5, is divided into calf and kip skins and "all other." In 1905 compared with 1900 the number of calf and kip skins increased 3,499,782, or 39.5 per cent, and the value \$7,678,769, or 48.9 per cent. Of the total number tanned and finished, 82.6 per cent were "grain" finished, 14.6 per cent "flesh" finished, and 2.8 per cent were made into patent and enameled

leather. Massachusetts, Wisconsin, Illinois, and New York produced 89.2 per cent of the skins, these being the only states reporting over a million skins each. Massachusetts was the largest producer of calf and kip skins in the United States, with 32.7 per cent of the total, and also made the largest gain over 1900, the increase in number of skins being 1,793,076 and in value \$3,445,864. Wisconsin produced the next largest quantity, 28.9 per cent, with an increase over 1900 of 766,798 in number of skins and \$2,077,911 in value. Illinois, New York, Ohio, and Michigan each showed a large increase in production, while New Jersey reported the largest decrease.

The amount and value of the various kinds of leather included under the head "upper leather, other than calf, kip, or colt skins," and the number of establishments reporting same are shown in Table 6. A comparison of the figures in this table with those in the corresponding table in the Census report for 1900 shows that "grain," etc., and "finished splits" decreased both in amount and in value, and that horsehide decreased somewhat in amount, but increased in value. Patent and enameled shoe leather increased 472.6 per cent in quantity and 205.3 per cent in value—a notable fact—as at one time it was said that this kind of leather could not be made successfully in the United States. A comparison in regard to coltskins is not possible, as the figures were not given separately in 1900. Ninety-three per cent of the coltskins reported in 1905 were manufactured in Pennsylvania and nearly all the remainder in New York state. Wisconsin, Massachusetts, and New York produced 81.7 per cent of the grain leather, etc., Wisconsin leading with 1,923,636 sides, valued at \$4,751,770. These states also reported about the same percentage of finished splits, Massachusetts leading with 2,357,182, valued at \$2,667,982. Massachusetts, Pennsylvania, and New Jersey made 86.3 per cent of the patent and enameled shoe leather reported in this country in 1905. Massachusetts reported the greatest number of sides, 506,450, valued at \$981,551, but New Jersey, while returning only 318,182 sides, reported a value of \$1,497,893—evidently a much higher grade of leather. Horsehides were produced mainly in Illinois and Wisconsin. Massachusetts, Wisconsin, New York, Illinois, Pennsylvania, New Jersey, and Michigan produced 95.6 per cent of the total value of "upper leather other than calf, kip, or colt skins."

The value of upper leather, \$52,784,265, given in Table 5 does not include upper leather made of goat and sheep skins. These skins, a separate class of products, are used for a variety of purposes, and it is impossible from the Census reports to make a segregation of the number used for upper leather.

Goatskins.—There was a decrease of 2.9 per cent in the number of goatskins and an increase of 6.2 per cent in value, and, notwithstanding the output reported in

1905 formed but 15 per cent of the value of all leather produced in the United States compared with 17.5 per cent in 1900, goatskins continued to lead in number and value all other kinds of skins manufactured. The skins were converted chiefly into "glazed kid" by what is known as the "chrome" process and used for shoe uppers, although some were made into "glove" leather, etc. Table 6 shows that 40,019,614 skins, or 87.6 per cent, were finished "black," and 5,671,878, or 12.4 per cent, "colored." Of the production of this class of leather in the United States, Pennsylvania led at the census of 1905, as in 1900, the output reported in 1905 amounting to 50.1 per cent of the total. Delaware reported the next largest output of goatskins—23.9 per cent of the total number. Massachusetts, New Jersey, and New York followed in the order named, and these 5 states produced 45,230,953 skins, valued at \$37,620,284, practically the entire production of the United States.

Sheepskins.—Although the number of sheepskins tanned and finished increased only 1.5 per cent, the total value increased 33.7 per cent. Ninety and eight-tenths per cent of the skins were produced by the following states, named in order of quantity reported: Massachusetts, New York, Maine, Illinois, New Jersey, Pennsylvania, and California. Massachusetts, New York, and Maine also led in the production of sheepskins in 1900 and ranked in the order named. In 1905 Massachusetts reported 33.5 per cent of the number of finished sheepskins produced in the United States. As compared with 1900 there was, however, a decrease of 1,697,583 skins, or 19.8 per cent, in number, but an increase of \$263,307, or 7.2 per cent, in value. Notwithstanding these figures, the state was still first in this branch of the industry. New York reported an increase in quantity of 1,771,736 skins, or 59.1 per cent, and in value of \$1,688,878, or 124.1 per cent, and Maine showed a slight increase over 1900 in both number of skins and value. A variety of articles are made from sheepskins, such as pocketbooks, gloves, cushions, bellows, traveling bags, shoe linings and trimmings, saddle pads, imitation chamois skins, sporting goods, and many fancy articles. It is tanned and finished much better than formerly, and is not only made to resemble closely other varieties of leather of superior quality, but is used for shoes of a cheap grade. Skins dressed with the wool on are made into coats, caps, mats, sleigh robes, gloves, etc.

Harness leather.—The production of harness leather increased during the period 1900 to 1905, 924,945, or 26.9 per cent, in number of sides, and \$3,562,132, or 21.3 per cent, in value.

Wisconsin reported the largest production, 1,504,944 sides, valued at \$6,097,651. The state also led in

1900 and increased its production from 1900 to 1905 by 542,978 sides, or 56.4 per cent, in quantity and \$1,903,279, or 45.4 per cent, in value. Pennsylvania was second in 1905, as in 1900, with a product of 518,178 sides, valued at \$2,989,450, which is an increase of 67,826 sides, or 15.1 per cent in number, and of \$497,728, or 20 per cent, in value. California was next, as in 1900, although reporting a decrease both in quantity and in value. Ohio was fourth, with a decrease of 26,581 in number of sides, but an increase of \$29,121 in value. Kentucky was the only other state reporting a product of over a million dollars in value. Five states—Wisconsin, Pennsylvania, California, Ohio, and Kentucky—produced 2,859,229 sides, valued at \$13,927,748, or 68.7 per cent of the entire production of the country. Maine, Massachusetts, Rhode Island, Delaware, Iowa, and Utah produced no harness leather, and the products of Alabama, Connecticut, Maryland, Minnesota, South Carolina, Texas, and Washington were of a less value than \$100,000 each. The production of harness leather, as shown by Table 6, was reported by 298 establishments, the largest number manufacturing any one kind of leather.

Other products.—With respect to the remaining kinds of leather, a comparison of the figures in this table with corresponding statistics of the census of 1900 shows that carriage and furniture leather increased both in quantity and in value, the increase in furniture leather being especially notable, namely, 102.4 per cent in number of hides and 153.3 per cent in value. Trunk, bag, pocketbook, bookbinders', and glove leather also show, respectively, increases in value over 1900.

Included under "all other leather" are kangaroo skins, used for shoe uppers; lambskins, used chiefly for gloves; sealskins, used for cloaks and caps when dressed by tanning establishments; alligator skins, used for valises, satchels, and cigar cases; skirting leather; offal leather, etc. The principal items comprising "all other products" were wool, hair, and glue stock. The value of the wool sold in the census year is estimated at \$2,225,000.

There were 251 establishments reporting custom work in 1905, 104 of them exclusively. Many made a specialty of enameling, embossing, coloring, cleaning, paring, skiving, etc. The estimated number and value of hides and skins that were tanned, curried, or finished for others are given in Table 6, hides or skins tanned and then curried or finished being included in the totals for each process.

Table 7 shows the rank of states according to capital, average number of wage-earners, total wages, and value of products, for 1900 and 1905.

TABLE 7.—RANK OF STATES ACCORDING TO CAPITAL, AVERAGE NUMBER OF WAGE-EARNERS, WAGES, AND VALUE OF PRODUCTS: 1905 AND 1900.

STATE.	Cen- sus.	CAPITAL.		WAGE-EARNERS AND WAGES.				VALUE OF PROD- UCTS.	
		Rank.	Amount.	Average num- ber.		Wages.		Rank.	Value.
				Rank.	Number.	Rank.	Amount.		
United States.....	1905	.....	\$242,584,254	.....	57,239	.....	\$27,049,152	.....	\$252,620,986
	1900	.....	173,977,421	.....	52,109	.....	22,591,091	.....	204,038,127
Alabama.....	1905	22	946,282	21	261	23	77,026	22	844,403
	1900	23	464,005	23	165	23	71,440	21	1,005,358
Arkansas ¹	1900	34	2,190	31	3	33	750	33	5,859
California.....	1905	11	6,368,078	10	1,515	8	945,051	9	8,072,257
	1900	10	4,820,205	8	1,454	8	870,973	8	7,405,981
Connecticut.....	1905	23	894,079	23	169	22	81,633	23	748,038
	1900	22	639,408	22	179	22	90,058	22	891,478
Delaware.....	1905	10	6,645,852	6	2,836	7	1,176,061	7	10,250,842
	1900	8	5,178,804	6	2,457	7	1,044,903	6	9,400,504
Georgia.....	1905	16	2,406,238	16	533	18	153,956	17	2,382,127
	1900	16	1,434,390	18	410	21	92,030	20	1,187,697
Illinois.....	1905	6	11,649,246	7	2,770	6	1,326,440	6	10,758,196
	1900	11	4,751,474	7	2,263	6	1,145,170	7	7,847,835
Indiana.....	1905	21	1,247,656	20	265	20	133,701	21	1,050,945
	1900	18	1,321,455	19	400	17	161,942	18	1,589,802
Kentucky.....	1905	13	4,428,693	14	728	13	326,696	13	3,952,277
	1900	12	4,681,389	12	810	11	321,658	12	3,757,016
Louisiana ²	1900	31	6,193	30	4	32	1,341	31	10,157
Maine.....	1905	19	1,464,735	18	515	15	236,987	16	2,500,146
	1900	17	1,376,106	15	587	14	229,268	16	2,451,713
Maryland.....	1905	17	2,018,666	17	531	16	217,579	18	1,911,348
	1900	20	1,088,725	17	455	18	156,182	17	1,754,102
Massachusetts.....	1905	3	27,070,206	2	9,074	2	4,556,327	2	33,352,999
	1900	4	15,317,940	2	7,010	2	3,379,698	2	26,067,714
Michigan.....	1905	9	6,860,797	8	1,747	9	865,673	8	9,340,349
	1900	7	5,214,042	9	1,427	10	559,142	9	6,015,590
Minnesota.....	1905	27	82,260	27	40	27	19,350	27	132,533
	1900	28	23,060	28	18	23	3,550	29	19,336
Mississippi ¹	1900	33	2,460	32	1	34	240	34	3,556
Missouri.....	1905	20	1,345,163	22	217	21	131,212	20	1,128,382
	1900	21	922,083	21	185	20	98,578	23	816,720
New Hampshire.....	1905	18	1,516,497	19	492	17	215,101	19	1,773,611
	1900	15	1,900,277	16	552	16	219,292	15	2,664,942
New Jersey.....	1905	5	12,492,373	5	4,953	3	2,793,327	5	21,495,329
	1900	5	9,906,119	5	4,178	5	2,057,197	5	13,747,155
New York.....	1905	4	24,037,904	4	5,444	5	2,485,162	4	21,642,945
	1900	2	19,062,817	3	6,530	3	2,775,115	3	23,205,991
North Carolina.....	1905	15	2,568,965	15	534	19	149,258	15	2,662,174
	1900	19	1,299,798	20	366	19	105,132	19	1,502,378
Ohio.....	1905	8	6,915,341	9	1,610	10	839,171	10	6,512,754
	1900	6	5,822,580	10	1,384	9	617,409	10	5,182,065
Oregon.....	1905	24	272,048	24	94	24	67,365	24	484,673
	1900	24	173,144	26	53	26	27,532	26	249,728
Pennsylvania.....	1905	1	72,972,114	1	14,413	1	6,417,750	1	69,427,852
	1900	1	57,320,227	1	13,396	1	5,457,518	1	55,615,009
Rhode Island.....	1905	25	252,972	25	87	25	48,275	25	346,647
	1900	26	157,900	24	69	24	32,092	25	292,939
South Carolina.....	1905	30	17,080	30	4	30	1,286	30	10,822
	1900	32	5,595	29	10	30	2,000	30	18,387
Tennessee.....	1905	14	4,013,289	13	736	14	251,665	14	3,583,871
	1900	14	3,444,197	13	803	13	239,870	14	2,802,117
Texas.....	1905	29	23,400	28	22	28	8,242	28	61,225
	1900	27	24,763	27	29	27	9,216	27	76,508
Utah ²	1900	30	8,625	31	3	31	1,500	32	5,863
Vermont.....	1905	26	201,466	26	60	26	27,066	26	342,312
	1900	25	160,906	25	68	25	31,225	24	365,099
Virginia.....	1905	12	4,635,224	11	1,055	12	357,699	12	5,829,812
	1900	13	4,032,387	11	889	12	313,677	11	4,716,920
Washington.....	1905	28	37,950	29	8	29	5,752	29	58,061
	1900	29	17,600	31	3	29	2,125	28	32,605

¹None reported in 1905.²Included in "all other states" in 1905.

TABLE 7.—RANK OF STATES ACCORDING TO CAPITAL, AVERAGE NUMBER OF WAGE-EARNERS, WAGES, AND VALUE OF PRODUCTS: 1905 AND 1900—Continued.

STATE.	Cen- sus.	CAPITAL.		WAGE-EARNERS AND WAGES.				VALUE OF PROD- UCTS.	
		Rank.	Amount.	Average num- ber.		Wages.		Rank.	Value.
				Rank.	Number.	Rank.	Amount.		
West Virginia	1905	7	\$8,750,696	12	946	11	\$434,263	11	\$6,061,509
	1900	9	5,049,615	14	664	15	224,444	13	3,210,753
Wisconsin	1905	2	30,409,164	3	5,556	4	2,686,904	3	25,845,123
	1900	3	18,283,591	4	5,262	4	2,241,861	4	20,074,373
All other states	¹ 1905	.....	39,820	.....	24	.....	13,174	.....	57,424
	² 1900	.....	63,351	.....	22	.....	6,963	.....	44,877

¹ Includes establishments distributed as follows: Colorado, 1; Iowa, 2; Louisiana, 1; Mississippi, 2; North Dakota, 1; South Dakota, 1; Utah, 1.

² Includes establishments distributed as follows: Arizona, 1; Iowa, 2; Kansas, 1; Nebraska, 2; South Dakota, 2.

The table shows that at the census of 1905 there were 5 states—Pennsylvania, Massachusetts, Wisconsin, New York, and New Jersey—that reported products valued at over \$20,000,000 each, having a combined total of \$171,764,248, or 68 per cent of the total for the United States. In 1900 the same states reported a combined total of \$138,710,242, which formed the same percentage of the total for the United States as in 1905.

Pennsylvania was the leading state in the production of leather, both in 1900 and 1905. The number of establishments reported dropped from 254 to 205, but capital increased \$15,651,887, or 27.3 per cent; number of wage-earners, 1,017, or 7.6 per cent; total wages, \$960,232, or 17.6 per cent; cost of materials, \$13,008,424, or 30.7 per cent; and value of products, \$13,812,843, or 24.8 per cent. The value of products in 1900 formed 27.3, and in 1905, 27.5 per cent of the total for the United States. The state led in the production of sole leather, glazed kid, and rough leather. The chief tanning materials used were hemlock bark, quebracho, oak bark extract, and chemicals.

Massachusetts was second in importance at both censuses and was one of the few states that showed an increase in number of establishments—from 119 to 132. Capital increased \$11,752,266, or 76.7 per cent; the number of wage-earners, 2,064, or 29.4 per cent; total wages, \$1,176,629, or 34.8 per cent; and value of products, \$7,285,285, or 27.9 per cent. The value of products in 1900 formed 12.8 and in 1905, 13.2 per cent of the total for the United States. The state led in the production of calf and kip skins and sheepskin leather, and produced goatskin, grain, and other upper leather in large quantities. All of the principal tanning materials were used.

Wisconsin ranked third. Although it lost 9 establishments in 1905 compared with 1900, it increased \$12,125,573, or 66.3 per cent, in capital; 294, or 5.6 per cent, in number of wage-earners; \$445,043, or 19.9 per cent, in wages; and \$5,770,750, or 28.7 per cent, in value of products. In kinds of leather produced,

calf and kip skins led; harness leather, of which Wisconsin produced more than any other state, was next, followed by grain and sole leather. Hemlock bark formed over 50 per cent of the cost of tanning materials; quebracho, gambier, and chemicals also were largely used.

New York and New Jersey were close rivals for fourth position. These states show results that make an interesting comparison. New Jersey with 73 establishments reported products valued at \$21,495,329, which is but \$147,616 less than that for New York, which had 118 establishments. To produce this almost equal value of products, New Jersey had a capital of \$12,492,373 as against a capital in New York of \$24,037,904, or \$11,545,531 less; 4,953 wage-earners as against 5,444, or 491 less; but paid in wages \$2,793,327 as against \$2,485,162 for New York, or \$308,165 more.

At the census of 1905, compared with that of 1900, New York gained \$4,975,087 in capital, but lost 29 in number of establishments, 1,086 in number of wage-earners, \$289,953 in total wages, and \$1,563,046 in value of products. The principal tanning materials used were hemlock bark, quebracho, and chemicals, and the principal products were sole leather, upper leather, calf and kip skins, sheepskins, and harness leather. At the census of 1905 the state led in glove leather, with 36.4 per cent of the total value of this class of leather produced in the United States. New Jersey lost 4 establishments, but gained \$2,586,254 in capital, 775 in number of wage-earners, \$736,130 in wages, and \$7,748,174 in value of products. The chief tanning materials used were oak bark, quebracho, and chemicals. In the manufacture of carriage, furniture, bookbinders', trunk, bag, and pocketbook leather, New Jersey led all other states. Goatskins, patent and enamel, and rough leather were also produced in large quantities.

Other states that reported a value of products of over \$5,000,000 were Illinois, having large quantities of calfskin leather; Delaware, the chief product of which was goatskin, or glazed kid; and Michigan, California,

Ohio, West Virginia, and Virginia, ranking in the order named. Pennsylvania showed the largest amount of increase in the total value of products, namely, \$13,812,-843, and Minnesota the largest proportionate increase, 585.4 per cent.

The value of products according to geographic divisions, given in the following tabular statement, shows an important concentration in Eastern states.

DIVISION.	1905	1900	Per cent of increase.
North Atlantic.....	\$151,629,879	\$125,302,040	21.0
South Atlantic.....	29,108,634	21,790,741	33.6
North Central.....	54,708,282	41,545,721	31.8
South Central.....	8,441,776	7,660,571	10.2
Western.....	8,614,991	7,694,177	12.0

¹Exclusive of Iowa, North Dakota, and South Dakota in 1905, and Iowa, Kansas, Nebraska, and South Dakota in 1900.

²Exclusive of Louisiana and Mississippi in 1905.

³Exclusive of Colorado and Utah in 1905, and Arizona in 1900.

The North Atlantic division, according to the statement, reported 61.4 per cent of the total value of products for the United States in 1900 and 60 per cent in 1905. The decrease in percentage of total is due to a larger proportionate increase in the South Atlantic and North Central divisions, but it is not sufficient to affect materially the leading position held by the North Atlantic states.

New York is the only state of prominence in the manufacture of leather having a decrease in value of products. A comparison of the reports for 1900 and 1905 shows that a number of manufacturers of goat-skins and upper and glove leather reported in 1905 a largely reduced output, and others retired from business; but this decrease in New York state, which is only 6.7 per cent, was overcome by the increases in the neighboring states of Pennsylvania, New Jersey, and Massachusetts.

The next largest division was the North Central, with 20.4 per cent of the total value of products in 1900 and 21.7 per cent in 1905. Wisconsin was by far the leading state, its production being 47.2 per cent of the total. Illinois and Michigan were also prominent, the former producing considerable "upper" leather and the latter "sole" leather. The proximity to forests, from which is obtained most of the tanning materials used, is an important factor in the growth of the industry in these states.

The South Atlantic division reported 10.7 per cent of the total value of products for the United States in 1900 and 11.5 per cent in 1905, the proportionate increase between 1900 and 1905 being more than that of any other division. Delaware was the leading state, followed by West Virginia and Virginia. In West Virginia, in which nearly the entire product was sole leather, the increase over 1900 in the value of products was 88.8 per cent, the highest next to that of Georgia, which showed an increase of 100.6 per cent. Virginia produced sole and rough leather chiefly.

The South Central and Western divisions produced but 6.8 per cent of the total for the United States. California, the leading state in these divisions, produced nearly 50 per cent of the total for both divisions, and manufactured oak sole and harness leather chiefly. The two divisions reported about the same value of products at both censuses, the Western gaining slightly more both in amount and percentage than the South Central.

Massachusetts and other New England states and Virginia were the original tanning states, but New York, Pennsylvania, New Jersey, Delaware, and Maryland, formerly classified as the Middle states, have held, as a group, first place for over a half century, and their combined product reported in 1905 was nearly one-half of the value reported for the United States. The present subdivision known as the "Southern North Atlantic"—New York, New Jersey, and Pennsylvania—reported 44.6 per cent of the total value for the country. The manufacture of leather is still concentrated largely in the eastern part of the country, and the growth of the industry has been so consistent in that section that, despite large increases in production in some of the North Central states, the East still holds the leading position.

As noted in connection with Table 5, the 5 leading states were Pennsylvania, Massachusetts, Wisconsin, New York, and New Jersey. Pennsylvania ranked first in every item. Massachusetts was second in all but capital, in which item the state was fourth in 1900 and third in 1905. Wisconsin was third in capital in 1900, but fourth in the other items. In 1905 this state advanced to second place in capital, third in value of products and number of wage-earners, and remained fourth in amount of wages paid. New York in 1900 was second in capital and third in the other items, and in 1905 dropped to fifth place in amount of wages paid and fourth place in the other items. New Jersey ranked fifth in capital, number of wage-earners, wages, and value of products in 1900, but advanced to third place in amount of wages reported in 1905.

Table 8 shows the cities that reported leather to the value of over \$5,000,000 in 1905, with their rank by value of products, with the per cent of increase, for 1900 and 1905.

TABLE 8.—Cities reporting in 1905 products of over \$5,000,000, ranked by value of products, with per cent of increase: 1905 and 1900.

CITY.	1905		1900		Per cent of increase.
	Rank.	Value of products.	Rank.	Value of products.	
Philadelphia, Pa.....	1	\$23,903,239	1	\$18,187,231	31.4
Milwaukee, Wis.....	2	14,074,397	3	10,267,835	37.1
Newark, N. J.....	3	13,577,719	2	10,857,192	25.1
Wilmington, Del.....	4	10,250,842	4	9,379,504	9.3
Chicago, Ill.....	5	9,420,426	5	6,979,289	35.0
Peabody, Mass.....	6	7,919,370	6	4,460,738	77.5
Camden, N. J.....	7	6,364,928	7	1,515,935	319.9

Philadelphia, which city ranked first at both censuses, reported products in 1900 that formed 8.9 per cent, and in 1905, 9.5 per cent, of the total value of products for the United States. The increase since 1900 was \$5,716,008, or 31.4 per cent. Philadelphia is the center of the "chrome" or glazed kid branch of the leather industry and its manufacture first proved successful there. Of the value of products reported at the census of 1905, \$19,070,981 was for goatskins. Milwaukee, Wis., ranked third in 1900 and second in 1905. An increase in value of products of \$3,806,562, or 37.1 per cent, is shown, and the principal leather manufactured was calf and kip skins, upper leather in the side, and harness leather. Newark, N. J., which ranked second in 1900 and third in 1905, reported an increase of \$2,720,527, or 25.1 per cent, and the chief products were carriage, furniture, patent, enameled, trunk, bag, and pocketbook leather. Wilmington, Del., the fourth in rank at both censuses, reported an increase in the value of products of only \$871,338, or 9.3 per cent. The principal leather manufactured was glazed kid. These 4 cities, each having a production valued at over \$10,000,000, reported \$61,806,197 worth of leather in 1905, being 24.5 per cent of the value of all leather manufactured in the United States. If there is added to this the value of the products of the next 3 cities, given in the table according to rank, namely, Chicago, Ill., Peabody, Mass., and Camden, N. J., the total for the 7 leading cities is \$85,510,921, or 33.8 per cent of the total for the United States. As these cities reported products valued at \$61,647,724 in 1900, the increase during the semidecade was \$23,863,197, or 38.7 per cent. Camden, N. J., the city seventh in rank, shows the remarkable gain in value of products of 319.9 per cent.

Power.—Table 9 is a summary of power used, 1900 and 1905.

TABLE 9.—*Number of establishments reporting power, and amount of each kind of power: 1905 and 1900.*

	1905	1900
Total number of establishments.....	1,049	1,306
Number of establishments reporting power.....	909	991
Total horsepower.....	129,975	91,917
Owned:		
Engines—		
Steam—		
Number.....	1,524	1,507
Horsepower.....	107,510	84,229
Gas or gasoline—		
Number.....	77	25
Horsepower.....	5,086	866
Water wheels—		
Number.....	62	109
Horsepower.....	1,935	2,231
Electric motors—		
Number.....	589	206
Horsepower.....	12,525	3,057
Other power, horsepower.....	60	3
Rented:		
Electric, horsepower.....	2,014	863
Other power, horsepower.....	845	668

Table 2 shows a large increase, 118.9 per cent, from 1900 to 1905 in the amount of capital invested in machinery, tools, and implements. The increase in the use of power shown in Table 9 is consistent with this increased use of machinery. The percentage of establishments reporting power increased from 75.9 in 1900 to 86.7 per cent in 1905. The total horsepower increased 38,058, or 41.4 per cent, and the average horsepower per establishment increased from 93 to 143. All kinds of power show gains except waterpower. In percentage of gain, gas or gasoline was first, electricity second, and steam third.

Exports and imports.—Table 10 gives the exports of the principal kinds of leather, 1891 to 1905.

TABLE 10.—*Exports of the principal kinds of leather: 1891 to 1905.*¹

YEAR END- ING JUNE 30—	Total.	Sole.	Kid (glazed).	Patent or en- ameled.	Splits, buff, grain, and all other upper.	All other leather.
1905.....	\$28,058,342	\$9,444,873	\$1,576,204	\$166,320	\$15,057,791	\$1,813,154
1904.....	24,851,582	6,978,497	1,512,179	170,940	15,049,602	1,140,364
1903.....	23,514,199	6,920,467	1,995,200	122,782	13,493,499	982,251
1902.....	22,350,134	6,569,857	1,755,599	151,930	12,817,017	1,055,731
1901.....	21,320,646	6,577,732	1,561,352	82,868	11,841,610	1,257,084
1900.....	21,797,157	6,433,303	1,909,914	101,708	11,913,256	1,438,976
1899.....	19,725,473	6,280,904	694,265	82,908	11,576,822	1,090,574
1898.....	17,796,404	6,644,553	249,990	93,847	9,949,593	858,421
1897.....	16,431,255	6,510,404	(?)	313,151	8,793,902	813,798
1896.....	17,764,985	7,474,021	(?)	369,452	8,903,863	1,017,649
1895.....	13,640,553	6,919,372	(?)	285,662	5,753,278	682,241
1894.....	12,778,945	6,481,257	(?)	249,127	5,221,205	827,356
1893.....	10,695,284	5,192,063	(?)	245,288	4,440,524	517,409
1892.....	10,518,363	5,783,555	(?)	249,239	3,880,475	605,094
1891.....	12,023,445	6,168,362	(?)	364,770	5,161,211	329,102

¹ Bureau of Statistics, Department of Commerce and Labor, Statistical Abstract of the United States.

² Not enumerated separately.

It will be noticed from Table 10 that there was a marked increase in the total exports from 1904 to 1905, namely, \$3,206,760, or 12.9 per cent, the largest increase in any one year except from 1895 to 1896, when it was \$4,124,432, or 30.2 per cent. The largest increase in the former year was in sole leather, \$2,466,376, or 35.3 per cent. In 1891 the total value of leather exported was \$12,023,445; in 1905, \$28,058,342, an increase of 133.4 per cent. "Splits, buff, grain, and all other upper leather" shows the largest increase, \$9,896,580, or 191.7 per cent, and sole leather the next largest, an increase of \$3,276,511, or 53.1 per cent. Glazed kid from 1898, the year it was first reported separately, to 1900 increased \$1,659,924, or 664 per cent; since the latter year the amount has varied, and in 1905 it was somewhat less than in 1900.

Table 11 gives the imports of the principal kinds of leather, 1891 to 1905.

TABLE 11.—Imports of the principal kinds of leather: 1891 to 1905.¹

YEAR ENDING JUNE—	Total.	Band or belting and sole leather.	Calfskins, tanned or dressed, and patent, enam- eled, and japanned.	Skins for morocco.	Upper leather, dressed, and skins, dressed and finished, not elsewhere specified
1905.....	\$5,612,642	\$92,079	\$605,960	\$2,446,481	\$2,468,122
1904.....	4,909,231	46,275	772,610	1,889,015	2,201,331
1903.....	5,173,566	68,421	964,044	2,161,885	1,979,216
1902.....	5,021,846	73,914	170,963	1,860,965	2,916,004
1901.....	5,701,193	34,198	69,691	2,703,101	2,834,203
1900.....	6,519,172	47,218	132,674	3,134,657	3,204,623
1899.....	5,237,707	52,688	238,846	2,455,332	2,470,841
1898.....	5,625,145	155,860	176,578	3,081,770	2,210,937
1897.....	6,337,644	157,128	53,395	3,716,259	2,410,862
1896.....	6,098,005	71,702	496,051	3,145,989	2,384,263
1895.....	6,863,343	256,505	527,427	3,728,255	2,351,156
1894.....	4,508,330	16,439	384,796	2,484,740	1,622,335
1893.....	8,282,172	34,862	1,548,356	4,137,435	2,561,519
1892.....	6,812,607	24,101	1,199,954	3,497,879	2,090,673
1891.....	6,319,582	21,896	890,729	3,474,735	1,932,222

¹ Bureau of Statistics, Department of Commerce and Labor, Statistical Abstract of the United States.

The total value of imports of leather for the past fifteen years amounted to \$89,022,185, an average of nearly \$6,000,000 per annum. The imports were highest in 1893 and lowest in 1894. In 1891 they were \$6,319,582 and in 1905, \$5,612,642, a decrease of \$706,940, or 11.2 per cent. Skins for morocco show the greatest loss. Except in calfskins 1905 imports were slightly larger than those for 1904. It is interesting to note that the value of exports for 1905 amounted to \$28,058,342 and that of imports to \$5,612,642, a difference of \$22,445,700.

For the fifteen years covered by both tables the total value of exports was \$273,266,767 and of imports, \$89,022,185, a difference of \$184,244,582. The nearest the value of imports and exports came to each other was in 1893, when the former amounted to \$8,282,172 and the latter to \$10,695,284. If to the value of leather exported in 1905 there is added the value of boots and shoes exported, \$8,057,697, of harness and saddles, \$502,660, and of all other manufactures of leather, \$1,318,046, the total becomes \$37,936,745; and if to the value of leather imported in 1905 is added the value of kid and other leather gloves imported, \$4,727,489, and of all other manufactures of leather, \$1,326,102, the total is increased to \$11,666,233, a difference in favor of exports of \$26,270,512.

A comparison of Tables 10 and 11 shows that while

there has been an almost steady increase in the annual exports until in 1905 compared with 1891 the value had considerably more than doubled, the imports have been of a varying value, and in 1905 were less than in 1891. In fact, in nine of the fifteen years included in Table 11 the value of the imports was less than in 1891.

The following interesting article is reproduced from the "Daily Consular and Trade Reports" of the United States, August 20, 1906, No. 2645:

No industry in the United States can look back upon a better record than that made by the manufacturers of leather and by the manufacturers of boots and shoes, bags and trunks. Efforts made in recent years to secure foreign markets for our footwear and other leather productions have been attended with a large measure of success.

For a long time American sole leather found favor in certain parts of Europe and would doubtless still be sold there in large quantities but for the successful efforts of the Heyl, Doerr, and Reinhart people at Worms, on the Rhine, to secure the secrets of its production. By putting the chemist and the tanner side by side these men were able to produce a sole leather which they claimed was equal to that of the United States in appearance, if it did not surpass it in durability.

The claim was made by Massachusetts and Milwaukee tanners that the German product was by no means as durable as the product of the tanneries of Danvers, Beverly, and other places in this country. One thing is certain in this connection. Foreign competitors are sparing no effort to secure a knowledge of our best methods, those that have led to the successful production of excellent leathers of all kinds, and to make new discoveries by original research in the laboratories connected with many of their tanneries. Austria, celebrated for certain leathers, has an excellent tanning school in Vienna. Germany, our most vigilant and forceful rival, established a splendid tanning school in Freiberg, Saxony, 25 miles from Dresden, and supplied it with all the most modern machinery used in this country, and to preside over it as head director secured a man who had been fifteen years a manager of the Pfister and Vogel tanneries in Milwaukee.

On one occasion, anxious to learn how American tanners produced such excellent chrome leather, the Germans sent a commission, headed by the great patent-leather manufacturer, Cornelius Heyl, of Worms, to this country to study our methods. If correctly reported, this commission went back only fairly successful, but by pursuing the German method of research, laboratory experimentation, putting the chemist and the practical tanner side by side, they claim to have reached satisfactory results. For the last ten or fifteen years American shoes have been making good progress in every market into which they have been introduced. Their superior merit has commended them to popular approval.

Table 12 is a detailed summary of the statistics for the industry, by states, for 1905.

HISTORICAL AND DESCRIPTIVE.

The wonderful tanning, tawing, currying, and finishing processes of the present day are the slow growth of centuries, and the production of leathers of the modern quality and variety is the culmination of years of study by practical tanners and by chemists.

Information in relation to early processes for making hides and skins of practical use is meager. It is known, however, that from the earliest times the skins of animals have been utilized for man's necessities. The New International Encyclopaedia, Volume XI, page 87, says:

Probably the original process of curing skins was that of simply cleaning and drying. Then the use of smoke, sour milk, various oils, and the brains of the animals themselves was found to improve the texture of the leather. Later it was discovered that certain astringent barks and vegetables effected permanent changes in the texture of skins, and stopped decay. This knowledge was possessed by the ancient Egyptians, for engravings on their tombs depict the process of tanning. In China specimens of leather have been discovered in company with other relics that prove them to be over three thousand years old. The Romans used leather which they tanned with oil, alum, and bark.

The first tanners or dressers of skins in our own country were probably the Indians, for when discov-

ered by early explorers they wore the skins of animals. It was their custom, after an animal had been slain, to remove the skin with a sharp flint flake, cleanse it thoroughly with water, and then dress it for practical use. For a dressing they used anything that would prevent putrefaction, like the brains of the animal itself, smoke, buffalo dung, oil, or clay. Their implements were made of stone and bone; the process of dressing the skin was laborious, and the leather was crude, but answered their needs.

Tanning was introduced into the American colonies in a commercial way early in the seventeenth century. While there is some doubt as to whether the first tannery was located in the colony of Massachusetts or in that of Virginia, there is no doubt that tanneries multiplied much more rapidly in Massachusetts than in any other colony.

The knowledge of tanners in colonial days was limited and their facilities for making leather crude. Boxes made of plank were sunk in the ground and used for vats, and oak bark was the principal tanning material, which, instead of being ground, was crushed into fine particles by the rolling of a heavy stone on it. The hides and skins were soaked and rinsed in water, particles of flesh removed by a sharp instrument, and hair loosened by the use of lime. The process of tanning was to sprinkle the fine bark upon the bottom of the vat, lay a side or skin upon it, then another layer of bark, another side or skin, and so on, in alternate layers, until the vat was nearly filled. The hides were then covered with water and allowed to soak for six or more months, although they were taken up several times during this period and the bark renewed. When taken out finally they were tanned thoroughly. In the making of sole or upper leather the same general treatment was followed, though heavier and thicker hides were given longer time in the bark.

From a small beginning the manufacture of leather attained large proportions. Demand, especially from boot and shoe manufacturers, forced the growth, but improved methods were slow of adoption. The use of machinery was discouraged, new formulas and processes were frowned upon, old style methods and ideas prevailed, and, despite the fact that the art of tanning depends upon chemical action and reaction, the scientific knowledge of chemists was repulsed. However, a change finally came. Chemistry, which had done so much for the advancement of other industries, fought its way in against the combined opposition of prejudice and ignorance and revolutionized certain branches of the industry. Other branches were touched with the spirit of progress, and during the past few years advancement has been as rapid as it previously was slow.

It is difficult to describe in a limited article a modern plant for the production of leather, the kinds of

materials used, the different processes necessary, and the final results. An effort has been made, however, to state in a general way the facilities requisite for the manufacture of leather.

Location of plants.—In establishing a plant for the tanning and currying of leather preference is given in Europe to a location on a river or stream, in order to have uniformity in the hardness or softness of the water which enters largely into the process. In the United States a similar position is preferred by some manufacturers, but not by many, as the frequent changes in the temperature of the water is a disadvantage. Some locate in the vicinity of forests from which oak and hemlock bark can be obtained in large quantities, and a few near packing house centers, but most manufacturers give preference to places to which materials can be easily sent and from which finished products can be readily shipped.

Water.—Water is very important in the manufacture of leather. It is used for washing, cleansing, and preparing the raw hides, as a solvent for tanning materials, and as a diluent for coloring and dyeing. Water from deep springs is preferable, largely because of its even temperature, and many plants are equipped with pumps to obtain it. A number of manufacturers use the water supplied from a common source by the cities or towns in which they are located, and others, the waters of rivers or streams. But from whatever source the water is obtained, it must be analyzed to determine its efficacy. Defects that may be found are overcome either by increasing or decreasing the quantity of tanning materials generally used for a given number of hides, or by using certain chemical agents. Borax, for example, is a good agent for softening and purifying hard water, thus making it suitable for the manufacture of upper leather.

Hides and skins.—The skins of larger animals, such as oxen, cows, horses, etc., are called hides to distinguish them from the skins of smaller animals, such as calves, goats, sheep, deer, hogs, seals, etc. Kip is the term applied to the skins of small beef or cattle. The quality and substance of the skin are affected by age, skins from younger animals being the finest in grain and taking dye better; by sex, leather made from the female being finer in texture than that made from the male; by breed, as the higher the breed the less thick the skin; by the care given the animal, animals raised in the open air having a coarser skin than those raised indoors; by state of health and food eaten; by the gadflies, known as wormills, warbles, or grubs, which deposit their eggs upon or in the skin, producing sores; by contact with barbed wire, which scratches the skin; by ticks and scabs, which infect sheepskins; and by the mode of preventing putrefaction of the skin after the animal has been slaughtered.

Animal skin.—An instructive description of the animal skin occurs in "The Manufacture of Leather,"

by Charles Thomas Davis, which is repeated in part in the following paragraphs:

The structure of animal skin consists of several readily distinguishable layers which behave differently in a chemical as well as in a physical respect.

The upper part of the skin in which the coat of hair, wool, or fur is rooted is termed the epidermis or cuticle. Next beneath this is the corium or true skin, and next to this the under skin.

The epidermis does not combine with tannin or other substances by the agency of which leather is produced. It is therefore useless to the tanner, and the first process to which hides and skins are subjected by him is that for removing the hair and epidermis. The portion of the skin thereby exposed is technically termed the "grain" side. The corium or true skin is the actual leather skin and is made up of interlaced bundles of connective tissue fibers, placed crosswise above each other and running parallel with the surface of the skin. It is more or less filled with fluid matter that serves to renew the cuticle and maintain the skin in a pliant and moist condition. On treating the skin with water these matters are removed, and there remains nothing but the fibrous portion saturated with water. In this state the skin appears semitransparent, and if the water be expelled by a gentle heat, it assumes the physical appearance of horn, and constitutes only about 32½ to 33 per cent of the raw hide.

The quality of leather which can be produced from a skin depends upon the thickness, flexibility, and strength of the corium, which exceeds the combined thickness of all the other layers of the skin.

A peculiar albuminoid substance (coriin) is stored between the separate fibers of the corium, which substance in a dry state connects and cements together the raw skin fibers. In a wet state, as after being immersed in limewater, this dissolves, the fiber becomes differentiated into finer fibrils, and the skin is said to open up.

The under skin consists of a loose connective tissue, in which the sweat and fat glands, the blood vessels, and the muscular fibers are embedded. It is previously removed in the "beam house" of the tannery, and takes no part in the tanning process.

The side upon which the connective tissue of the under skin is located is technically designated as the "flesh" side.

Hemlock and oak bark.—The presence of a tannic acid or tannic acid compound is necessary to make a vegetable substance suitable for use in tanning. Of vegetable tannage, hemlock and oak bark lead. A mixture of the two termed "union tannage" is also used largely and makes a durable leather. Hemlock bark is light, has a somewhat balsamic odor and a slightly astringent taste. Oak bark (rock chestnut oak and yellow barked oak) is considered the best vegetable substance in the United States for tanning purposes. Of the two varieties of oak bark the first named is the better. Prime quality is obtained from the Blue Ridge, the most easterly ridge of the Allegheny mountains. It is used principally by tanneries located in Virginia, North Carolina, Kentucky, and Tennessee, the bark in the latter state being obtained from the Cumberland mountains. In tanning it is used unmixed and gives a beautiful bloom, the sole leather produced with it being always in demand both for home consumption and for export. Very fine oak tan bark is also found in California. Hemlock bark is found in large quantities in Pennsylvania, New York, Wisconsin, and Michigan.

Gambier.—This is an extract from the leaves of *Uncaria gambier*. It comes in small pieces, of a light

or dark rust or gray color, which float upon water and are friable. It dissolves slightly in cold water, readily in hot, and possesses a high percentage of tannin.

Sumac.—Sumac consists of powdered leaves, stems of blossoms, and branches of several *Rhus* species. There are a number of varieties, Sicilian, Italian, Spanish, Tyrolean, French, Tezera, Swedish, and American. American sumac is derived from *Rhus canadensis* and *Rhus glabra*. Sumac is used in tanning patent, enameled, and furniture leather, sheepskins, grain, split, and buffed leathers. As leather tanned with sumac has little capacity for resisting water, it is principally used for bookbinding, portfolios, pocket-books, linings, bindings, skivers, etc.

Quebracho.—Quebracho is a Spanish word meaning axbreaker, and is applied to a kind of tree the wood of which is very tough. This tree grows only in El Gran Chaco, in the Argentine Republic. Its height is from 18 to 36 feet and its diameter 18 to 40 inches. The valuable tanning properties of this wood were discovered in 1867. The material, however, is too strong in tanning to yield well-nourished leather unless combined with agents which are stronger in nontanning substances. The great advantage of quebracho wood is its cheapness and the rapidity with which it effects a thorough tanning of certain kinds of leather. By using it mixed with oak or hemlock bark, gambier, or other tanning material, a splendid product is obtained much more quickly and at a reduced cost.

Canaigre.—For centuries in the rainless region of the southwest the Aztecs, Zunis, Pueblos, and later on the Mexicans have been tanning hides with the root of a sour dock or wild rhubarb called by the early missionaries "sour cane," "Cana agria," which was finally pronounced cah-na-ger, and spelled canaigre. Tannic acid is formed in all parts of the plant, but is most plentiful in the roots. This material is said to tan the heaviest sole and harness leather or the lightest calf and sheep skins with the best results.

Palmetto root.—This is found principally in the state of Florida and is especially suited to the tanning of light skins.

Valonia.—Valonia consists of the cups of the acorns of the common oak of Asia Minor, Turkey, and Greece, and is adapted to heavy skins or hides. It adds weight and firmness to sole leather, and sole leathers in which the earlier processes have been hastened by mechanical devices are increased in value by being laid away with valonia.

Myrobalan.—Myrobalan is the dried unripe fruit of various East Indian trees; it averages nearly 40 per cent of tannin contents, is of good color, and has to some extent the same valuable properties as valonia, although not to so great a degree. Both of these materials are new to the United States.

Other vegetable tanning materials.—Among other important vegetable tanning materials are the following: Gallnuts of different varieties; ratany root, imported from Peru; avens, tormentil, and sassafras roots; fir,

willow, walnut, elm, horse chestnut, larch, alder, beech, and snouba barks; ruteae and kino, inspissated vegetable juices from India, Africa, Malabar, and Ceylon; divi-divi, dry pods of a bush indigenous to South America; and algarroBILLA, an improved form of divi-divi.

Mineral tanning materials.—Such great strides have been made in the use of inorganic chemicals for tanning purposes during the past twenty years that one almost forgets that their use dates back to very early times. The Saracens are credited with utilizing alum and aluminum salts for tanning skins, and for years these were the only inorganic chemical substances used. The principal ones now used are alum, aluminum sulphate, and aluminum acetate; chromates and chromic oxides; hyposulphite of soda; muriatic acid; sulphuric acid; ferric salt; and common salt.

Chrome tannage.—It is not possible in this article to discuss all the various processes used in tanning skins by means of chemicals. "Chrome" or mineral tannage is preeminent the world over and is of American origin. Davis, in "The Manufacture of Leather," states that there are two important methods in use, one known as the "two-bath" process and the other as the "one-bath." Of the former process he says:

The skins, after being fully prepared for tanning, are immersed in a bath containing a solution of bichromate of potash and muriatic acid. This is called the "first bath," in which the skins remain until they have absorbed sufficient of the chromic acid. The skins are then placed in the "second bath," which is a solution of hyposulphite of soda, to which muriatic acid is added. The chemical reaction in the "second bath" sets free sulphurous acid, which acts as a reducing agent upon the chromic acid in the skin, forming chromic oxide, which unites with the fiber of the skin, converting it into leather.

Of the latter process he says:

A dilute solution of a basic or oxy salt of chromium is used in which the chromic oxide is held in the solution. In fact, the skins absorb the chromic oxide from the solution in the same manner as the skins would absorb tannin from a bark liquor.

The "chrome" process has effected a revolution in the industry. Applied to goatskins it made a glazed kid that drove morocco leather and French kid out of the market. It has a tendency to make upper leather fireproof and impervious to water, lighter in weight than bark-tanned leather, as well as softer and more durable. Effective in the tanning of goatskins, the "chrome" process is now applied to sheep, calf, and kip skins and to upper leather in the side. The making of sole leather by this process is still experimental, but it is thought that it will eventually succeed. To cut down the time required to tan heavy hides is the goal of the tanners, and it is believed by many that the use of inorganic chemicals will accomplish this purpose without detracting from the quality of the leather. The quick tanning processes are likely to include stuffing and weighting with materials that cost little and do not enhance the quality of the leather.

Leaching.—Leaching is the process of extracting "tannin" from bark, wood, or other substances which contain it, for the purpose of obtaining a tanning liquor. It is done by tanners or by those who make a business of manufacturing or selling the extract. It is essential not only that the exhausted bark shall show a very small percentage of tannin but that the tannin taken out shall be secured economically. There are a number of methods of leaching, but the underlying principle is the same in all.

MANUFACTURE OF LEATHER.

Some of the processes of making leather are common to all kinds of leather, but other processes vary in accordance with the kind of leather to be produced. In manufacturing there are three great divisions of the work:

1. Beam house work, or that which is done before tanning.
2. Tanning or tawing.
3. Currying and finishing.

The work in the beam house consists chiefly in removing from one side of the skin the epidermis and hair, and from the other side the under skin of loose connective tissue and adhering flesh.

Tanning is the conversion of the gelatin, forming the fibrous tissue of the skin, into a compound of tannic acid or whatever tanning agent is used, by treatment with a solution of the tanning agent in water.

Tawing is a preservative method of converting skin into leather by using mineral substances. Tawed leather, it is claimed, is stronger, softer, and more elastic than tanned leather, and differs from it in that it is not a chemical compound.

Currying is one of the methods of finishing leather. It makes leather soft and pliable and gives the surface a finished appearance. Finishing processes vary according to the kind of leather desired.

Soaking and softening.—The first beam house work is soaking. The hides and skins are put to soak in pits, wheels, or drums, to remove the dirt, salt, blood, etc. Green or native and dried hides are treated alike, except that the latter need soaking a longer time. Skins require a much shorter period than hides. The addition of borax and alum to the water and the plentiful use of the latter with frequent changes produce the most satisfactory results. If the hides are not to go through the tanning process whole, they are divided into sides when they come from the soaks by being split down the backs. Then if sole or belting leather is to be made, the sides and skins, when dry, are next softened in a hide mill, ten to twenty minutes being allowed for a skin and one-quarter to three-quarters of an hour for a side. The mills are of different construction for the various branches of the leather manufacture.

Fleshing.—Fleshing, which comes next, consists in removing all fleshy and fatty matter that may adhere

to the inner side of the skin. This is often done by hand by means of a sharp blade, but much more effectively by knives fixed on the surface of a cylinder made to revolve rapidly by machinery.

Depilation or unhairing.—After fleshing, the skins are soaked in a solution of lime to loosen the hair and epidermis and to swell the skin preparatory to tanning. Lime has been used for unhairing since early times and is to-day the best agent known. Sulphide of sodium and sulphide of arsenic have been tried, but they are most effective when used in conjunction with lime. Among other things used are powdered charcoal and sulphide of barium. Dry hides for the manufacture of sole leather are unhaird by the "sweating" process. After the hair is loosened, it is pulled out, the hide being brought in contact with the edges of thin pieces of slate set in the surface of a revolving cylinder. The hides then are washed and refleshed to take off the flesh "puffed up" by liming or left on after the first fleshing, and the hide thus treated will more quickly take the tan liquor. The operation of the machine for refleshing is so clean that when it is used skiving is unnecessary.

In unhairing and fleshing by hand the workman spreads the hide or skin over what is known as the "beam," which is semicylindrical in shape, 3 or more feet long and about 2 feet wide, set up at an angle of about 95 degrees and covered with sheet zinc. Bending over the top of this beam he holds the hide in place by the pressure of his body, and scrapes the hair or flesh from the hide with a heavy two-handled knife, in the edge of which, in the case of unhairing, is set a piece of slate. From the "beam" on which the work is done came the term "beam house." The hand fleshing process is called "shaving," or "green shaving," and the hand unhairing process is called "beam slating." Machines do the work so well, however, that handwork is rapidly disappearing. There is a machine that can be used for fleshing, unhairing, and "working out," the latter operation being important, as it removes all the fleshy and parchment-like tissues and breaks the nerves of the hides. Washing is done several times in the beam house. One method is to throw the hides or skins into a large revolving drum or wash wheel, in which the water is kept clean and fresh. Hides intended for sole leather, after unhairing and fleshing, are thrown into vats of clean water and left overnight. In the morning they are removed and then "grained," which process consists in scraping the hide on the grain side in order to cleanse it more thoroughly from the lime remaining in the pores. After being grained the hides are again placed in clean water for several hours. They are then ready for tanning.

Bating.—Before hides and skins intended for upper and other pliable leathers are ready for tanning or tawing, they are put through an operation called "bating"

or "puring." This is the immersing of the hides or skins in an alkaline solution consisting of the manure of chickens, pigeons, or dogs, in bran water, or in some substitute for these. The object of "bating" is to remove not only the lime or other alkaline depilatories from hides and skins previous to tanning, but also some of the tissue of the hide itself, in order to make it soft or—as in the case of chrome tanned leather—to prevent the tanning process from rendering the hide stiff and hard. All "chrome" tanned and many other upper leathers, especially the lighter weights, are generally bated. Bating is best done by placing the hides or skins in a vat having a circular and tight bottom; over the vat is arranged a revolving paddle wheel which dips into the solution, thereby agitating it, and maintaining the hides or skins in constant motion. After being properly bated the skins are removed and then "slated" by hand or machine to free them from short hairs. They are next worked out or scoured to remove lime and dirt, then placed in the interior of a wheel or drum and washed with clean water for a few minutes. They are now ready for tanning. While sole leather should be cleansed from lime, it is not advisable that it be bated with animal excrement, because that destroys too much of the gelatin.

Handling.—The actual tanning now begins, and "handling" is the term applied to transferring the hides or sides to and from the vats and to the agitation of them while remaining in the liquor. The object of this process is to equalize the action of the lime in unhairing, the bate in bating, and the weak liquor or ooze in the first stage of tanning. The old-style method was to haul up the sides by hand from the vat and pile them, allowing them to press each other and drain, then to throw them back again. One method still used considerably is to handle and transfer by a revolving device, such as a reel. Other devices are the rocker handler, the paddle wheel, and a large revolving drum divided into compartments. Still another method is to tack the sides on sticks, then when thrown into a pit full of tanning liquor, the ends of the sticks rest on the edge of the pit holding the hide suspended in the liquor. The hides are moved from pit to pit, from the weakest through all grades to the strongest liquor. When tanning is completed they are pulled off the sticks and hung on poles in the open air to dry.

Plumping.—"Plumping" is the immersion of the hides in an acid liquor which is gradually increased in strength. This action completes the swelling of the cells, distends the pores, and thus favors the absorption of the tannin. The process is applied only to heavier classes of sides.

Laying away.—Hides and skins intended for sole, upper leather, etc., are now ready for "laying away." For this purpose vats nine feet long, seven feet wide, and

eight feet deep are used in which the stock is placed, grain side up, in layers. Between each layer is sprinkled a slight thickness of ground bark, tan liquor is run into the vat, and then the whole is crowned with a layer of bark, which is called a "heading." The leather is usually laid away for several months, the bark being removed four or five times. Lighter grades take less time than heavier ones.

Stoning.—Tanning completed, the next process is splitting. But to prepare for splitting, leather is "stoned out." This is done by means of a "stoning jack," a machine with a long arm, in the end of which is placed a round piece of stone or steel that is drawn with a firm pressure over the surface of the leather, held in place by the operator with his hands or by his body pressed against the table edge. Each time the arm returns from a stroke the leather is moved so that every part comes under pressure. This process smooths out all wrinkles and stretches the leather.

Splitting.—Splitting, which was formerly done by hand and required great skill, is now nearly always done by a machine. In making upper leather from cowhides the thickness of the hide has to be reduced. This is accomplished and the area of the leather thus increased by passing a knife through the hide parallel with the surface, taking one or several splits from the side of leather. The outside part is the most valuable and is called the grain. Before splitting, the hides are soaked for a short time and then allowed to mellow twelve to twenty-four hours. After the grain is split from the side, the remaining split is retanned, and whenever the grain itself is insufficiently tanned in spots, it is thrown into a retanning mill or large revolving drum. The splitting of hides by machinery was a wonderful invention and has proved itself of untold value. Grain and buffed leather, so much used in this country and also exported, as well as splits of all kinds, used largely for shoes, owe their success mainly to splitting machines.

Scouring.—Little remains to be done to sole leather except drying and rolling, though some oak leather is scoured to remove the bloom, but a number of currying and finishing processes are necessary to prepare other kinds of leather for use. Scouring is one of these. It is done with a brush, stone, and slicker, frequently by hand, but much better results are obtained by using a machine that operates a cylinder in which have been placed short lengths of bluestone. Cylinder machines work out the dirt, put the leather in good shape, and make it dry, even, and smooth.

Stuffing.—After being scoured, the leather is hardened or thoroughly dried out, then dampened and tempered so as to facilitate the absorption of grease and oil, which is worked into the leather in a stuffing mill. This mill is a large hollow drum similar to other drums or so-called mills used in connection with a tannery. The operation of "stuffing" is an important

one. It requires good judgment and knowledge of materials used, and the man who prepares the mixture with which the leather is stuffed must have considerable skill. The object of stuffing is to precipitate the fatty or oleaginous bodies in the fiber of the skin and to render the leather soft and pliable.

The materials used are cod liver oil, neat's-foot oil, degreas, tallow, stearin, paraffin wax, glycerin, etc. Borax, sal soda, soaps, and other alkalies are used for cutting these oils and fats.

Setting out.—Setting out, also called "putting out," has for its object the stretching, straightening, and smoothing of the leather and the removal of superfluous stuffing. The process is begun in a machine but completed by hand. The leather is laid on a smooth surface, usually a slab of marble, and scraped over with a blunt steel blade, which stretches it out, and at the same time presses it close to the slab, to which it adheres. All wrinkles are thus removed. The leather is next dried.

Buffing.—There is a difference in the treatment of grains and splits from this point. The former, after drying and dampening, are buffed. This consists in shaving from the hair side a sheet of the epidermis as thin as tissue paper, which takes with it the dirt lodged in the skin and pores and the fine hairs which have escaped the unhairing process, thus leaving a clean uniform surface for the finish. Buffing is also done on an emery wheel.

Blacking.—The leather is next blacked or dressed with some other color by hand or by a machine with revolving brushes, after which it is staked.

Staking.—A staking machine is like a "jack," with the addition of a mechanical contrivance for gripping the leather at the edge of the table and holding it while the stroke is given, releasing it to be moved after each stroke. It does its work by an arm having a reciprocating motion by which a blunt steel blade is drawn across the surface of the leather, that part which is under the blade resting upon a flexible surface, formed by a belt of canvas, or upon two rollers, which follow the excursions of the arm, carrying the leather before it. Staking softens the leather and takes some of the stretch out of it.

Jacking.—The surface which is being finished now gets its final jacking. The machine with which this is given may be a "pebbling" or "printing" jack, in which case the tool is a roller having a pattern impressed on its surface which it embosses on the leather. Or the jack may have a smooth roller, to give a plain smooth finish; or a piece of agate or glass for glazing the surface.

Graining.—The leather is next grained or soft-boarded; the processes are the same. In either case the edge of the piece of leather is folded over and then rolled under the surface of a piece of board attached to the operator's forearm. In graining, the grain or

finished side of the leather is folded upon itself, the board being in contact with the unfinished side, which treatment results in the formation of small creases and ridges on the finished surface, and in breaking the sameness of any pattern which may have been impressed in jacking. In soft-boarding, the piece of leather is folded with the unfinished sides together. The result is to soften the leather and give it a smooth finished surface. A stain is sometimes put on the finished surface by hand. The leather is next oiled, passed through a finishing machine, which brushes into its surface a coat of wax, glue, or some other size, then through a measuring machine which records its exact area, finished a second time, oiled a second time, sorted, and tied up into bundles.

Splits.—Splits are finished as follows: After being set out and dried, they are put through a "whitening" machine, a machine like a jack, the arm of which is equipped with a small rapidly revolving cylinder, set with knives, which shave off a thin layer from the skin, thereby making a better surface for finishing. Whitening was formerly done by hand, in the way in which slicker buffing is done at present. The splits are next blacked, as the grains are; glassed, or put under a jack having a piece of glass or agate on its arm, which gives to the split a smooth surface; pasted, a dressing of pasty consistency given them by a machine like the blacking or finishing machine; colored, a stain painted onto the unfinished surface; reglassed, finished as the grains are; sorted, measured, and tied up into bundles, ready for the market.

Other processes.—There are additional processes through which some leathers are put. Some of the terms are peculiar to glazed-kid manufacturers.

Fine unhairing.—Fancy leathers in which the natural surface of the grain is to be preserved and finished, can not be buffed, and consequently receive a fine unhairing, which is the removing by a hand tool of the fine hairs that escape the unhairing machine.

Shaving.—Leathers which are not split are shaved—that is, the rough uneven surface of the flesh side is shaved off. This is done either by hand or by machine. Grains and splits are also sometimes shaved.

Crutching.—Crutching is a process similar to staking and is done by hand. Strong skins, which will stand a good deal of stretching, are crutched as follows: One edge of a skin is fixed in a clamp, the other grasped by the hand of the crutcher. His tool is a blunt steel blade mounted on the end of a short stick which fits under the shoulder like a crutch. The blade is held by the right hand. Holding it thus, and pressing it firmly against the outstretched skin, the crutcher pushes it across the leather, thereby stretching it and softening it. The same kind of leather is sometimes "knee-crutched"—held extended in both hands over a blade set upright in a post, and drawn over this blade by pressing one side down with the knee.

Perching.—There is another process called "perching," which accomplishes the same results as staking or crutching, though in a less degree, and which is used only on leathers that will bear comparatively little strain.

Clearing and sweetening.—This process removes iron stains and other dark spots from leathers which are to be finished in light colors. The skins are treated with a solution of sulphuric acid or other bleaching substance and are then rinsed in clear water until the acid is removed.

Seasoning.—This is coating the surface of the skin with a light dressing consisting of blood, logwood, potash, milk, albumen, glycerin, or some similar preparation to prevent the glazing agate from pinching or drawing the surface of the skin.

Glazing.—After the seasoning dries, the skins are glazed by machines constructed with a glass cylinder firmly clamped into a moving arm, which, touching the leather, causes a friction that puts on a gloss. In some machines the arm moves toward the operator, and in others, sidewise. The glazing is done two or three times.

Dyeing and coloring.—The dyeing and coloring of leather has become a much more important process than formerly. Colored leather is in great demand, and the adaptation of coal tar colors to the dyeing of leather has enabled manufacturers to put on the market leather that shows a wide range of shades and tones. Aniline colors are used largely, due to the beauty of their shades and the readiness with which leather absorbs them; when used, mordants, acids, or salts of some kind, the function of which is to make leather ready to absorb coloring matter, are seldom necessary, for the colors can be applied directly.

The ordinary method of dyeing is to place several dozen skins in a dye bath and then turn them over by hand, one pair at a time. Paddles or reels are often used, for, though dyestuff is wasted, time and labor are saved. Coloring is done by painting or brushing the solution over the skin.

Wood dyes and dyes made from other vegetable substances are also extensively used, the former producing a color that is very durable and lasting.

Uniformity of color is most desirable, but not easily obtained. Some of the most important points to be considered are the following: The kind of leather to be dyed, for some skins take dye much better than others; the making of the dyes; the strength of the solution; the quantity of dye the skin is allowed to absorb; the kind of mordant used, and treatment after the dye has been applied, etc.

Measuring machines.—Though heavy leathers are sold by weight, light leathers are sold by area. The yardstick and ordinary measuring frames are still in use, but nearly all manufacturers have measuring machines which are so constructed that they can be operated by either hand or power and are said to be absolutely accurate in their measurements.

TABLE 12.—LEATHER, TANNED, CURRIED, AND FINISHED—

	United States.	Alabama.	California.	Connecticut.	Delaware.	Georgia.
1 Number of establishments.....	1,049	4	49	9	20	29
2 Capital:						
3 Total.....	\$242,584,254	\$946,282	\$6,368,078	\$894,079	\$6,645,852	\$2,406,238
4 Land.....	\$9,842,911	\$51,075	\$460,254	\$70,972	\$350,983	\$74,790
5 Buildings.....	\$35,684,642	\$105,075	\$951,899	\$117,489	\$870,661	\$284,110
6 Machinery, tools, and implements.....	\$32,889,457	\$153,826	\$540,423	\$82,829	\$784,850	\$358,144
7 Cash and sundries.....	\$164,167,244	\$636,306	\$4,415,502	\$622,789	\$4,639,358	\$1,689,194
8 Proprietors and firm members.....	1,112	3	39	7	18	38
9 Salaried officials, clerks, etc.:						
10 Total number.....	3,251	7	116	21	192	24
11 Total salaries.....	\$4,451,906	\$8,896	\$183,583	\$28,270	\$250,583	\$29,446
12 Officers of corporations—						
13 Number.....	460	2	39	11	30	5
14 Salaries.....	\$1,467,920	\$1,216	\$83,035	\$19,060	\$99,233	\$14,049
15 General superintendents, managers, clerks, etc.—						
16 Total number.....	2,791	5	77	10	162	19
17 Total salaries.....	\$2,983,986	\$7,680	\$100,548	\$9,210	\$151,350	\$15,397
18 Men—						
19 Number.....	2,551	5	66	8	141	19
20 Salaries.....	\$2,862,897	\$7,680	\$94,008	\$8,118	\$139,678	\$15,397
21 Women—						
22 Number.....	240		11	2	21	
23 Salaries.....	\$121,089		\$6,540	\$1,092	\$11,672	
24 Wage-earners, including pieceworkers, and total wages:						
25 Greatest number employed at any one time during the year.....	68,464	280	1,721	215	3,672	727
26 Least number employed at any one time during the year.....	46,740	237	1,364	164	1,853	486
27 Average number.....	57,239	261	1,515	169	2,836	533
28 Wages.....	\$27,049,152	\$77,026	\$945,051	\$81,633	\$1,176,061	\$153,956
29 Men 16 years and over—						
30 Average number.....	54,517	258	1,512	154	1,925	526
31 Wages.....	\$26,321,552	\$76,466	\$944,098	\$77,201	\$919,137	\$153,060
32 Women 16 years and over—						
33 Average number.....	1,814		1	9	812	
34 Wages.....	\$525,031		\$475	\$3,512	\$226,035	
35 Children under 16 years—						
36 Average number.....	908	3	2	6	99	7
37 Wages.....	\$202,569	\$500	\$478	\$920	\$30,889	\$896
38 Average number of wage-earners, including pieceworkers, employed during each month:						
39 Men 16 years and over—						
40 January.....	53,566	261	1,516	148	1,786	497
41 February.....	54,454	255	1,534	149	1,872	509
42 March.....	55,016	256	1,519	149	1,938	512
43 April.....	54,767	259	1,512	150	1,975	515
44 May.....	54,571	260	1,493	150	1,889	542
45 June.....	54,694	249	1,500	147	1,852	531
46 July.....	54,801	254	1,506	163	1,626	554
47 August.....	54,998	257	1,525	161	1,702	609
48 September.....	54,759	257	1,516	159	1,938	536
49 October.....	54,378	258	1,519	163	2,110	528
50 November.....	53,463	266	1,506	154	2,263	497
51 December.....	54,647	264	1,498	155	2,149	482
52 Women 16 years and over—						
53 January.....	1,719		1	7	720	
54 February.....	1,775		1	7	783	
55 March.....	1,829		1	7	788	
56 April.....	1,823		1	7	820	
57 May.....	1,820		1	7	830	
58 June.....	1,748		1	7	840	
59 July.....	1,738		1	11	750	
60 August.....	1,695		1	11	687	
61 September.....	1,841		1	11	815	
62 October.....	1,961		1	11	878	
63 November.....	1,941		1	11	929	
64 December.....	1,878		1	11	904	
65 Children under 16 years—						
66 January.....	836	3	1	6	88	7
67 February.....	868	3	2	6	92	7
68 March.....	873	3	2	5	81	7
69 April.....	890	3	2	5	85	7
70 May.....	875	3	2	4	86	7
71 June.....	896	3	2	3	88	7
72 July.....	921	3	2	8	87	7
73 August.....	954	3	2	7	105	7
74 September.....	934	3	2	7	115	7
75 October.....	916	3	2	7	117	7
76 November.....	951	3	2	7	122	7
77 December.....	982	3	2	7	122	7
78 Miscellaneous expenses:						
79 Total.....	\$12,498,501	\$79,878	\$277,474	\$44,739	\$291,267	\$41,183
80 Rent of works.....	\$358,822		\$7,250	\$2,800	\$8,930	\$190
81 Taxes.....	\$670,441	\$2,077	\$17,792	\$3,546	\$14,704	\$3,115
82 Rent of offices, interest, insurance, and all other sundry expenses not hitherto included.....	\$10,588,070	\$77,801	\$252,432	\$38,393	\$258,823	\$37,878
83 Contract work.....	\$881,168				\$8,750	
84 Materials used:						
85 Aggregate cost.....	\$191,179,073	\$606,402	\$5,912,140	\$542,660	\$7,910,779	\$1,887,156
86 Hides and skins—						
87 Total cost.....	\$145,467,925	\$453,663	\$4,592,459	\$388,030	\$6,899,431	\$1,505,015
88 Hides, all kinds—						
89 Number.....	17,581,613	69,832	634,417	31,324	19,698	284,503
90 Cost.....	\$89,126,593	\$453,653	\$3,528,424	\$247,398	\$111,550	\$1,490,015
91 Calf and kip skins—						
92 Number.....	12,481,221		107,834		110	10,015
93 Cost.....	\$15,725,616		\$138,172		\$94	\$13,615
94 Coltskins—						
95 Number.....	1,336,848					
96 Cost.....	\$2,007,160					
97 Goatskins—						
98 Number.....	47,665,603	25	20,022		11,013,895	1,375
99 Cost.....	\$26,756,012	\$10	\$13,814		\$6,599,415	\$1,092
100 Sheepskins—						
101 Number.....	27,492,359		1,510,067	334,668	463,404	762
102 Cost.....	\$10,547,883		\$829,275	\$131,762	\$188,372	\$203
103 All other skins—						
104 Number.....	1,649,033		112,720	7,803		
105 Cost.....	\$1,304,661		\$82,774	\$8,870		

LEATHER, TANNED, CURRIED, AND FINISHED.

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DETAILED SUMMARY, BY STATES: 1905.

Illinois.	Indiana.	Kentucky.	Maine.	Maryland.	Massachusetts.	Michigan.	Minnesota.	Missouri.	New Hampshire.	
28	13	20	27	17	132	25	9	9	8	1
\$11,649,246	\$1,247,656	\$4,428,693	\$1,464,735	\$2,018,666	\$27,070,206	\$6,860,797	\$82,200	\$1,345,163	\$1,516,497	2
\$451,307	\$26,700	\$268,458	\$42,716	\$33,734	\$793,720	\$231,823	\$7,950	\$140,520	\$196,095	3
\$2,629,305	\$151,250	\$569,244	\$214,500	\$191,936	\$5,760,727	\$371,604	\$24,850	\$164,781	\$216,376	4
\$2,762,064	\$68,247	\$549,631	\$192,430	\$186,080	\$6,967,758	\$672,228	\$22,440	\$102,598	\$164,806	5
\$4,806,570	\$1,001,459	\$3,041,360	\$1,015,089	\$1,606,316	\$13,548,001	\$5,085,142	\$27,020	\$937,264	\$939,220	6
20	18	12	28	28	152	13	8	4	15	7
97	18	62	29	24	526	92	2	21	51	8
\$134,674	\$20,384	\$89,611	\$31,232	\$36,587	\$686,334	\$146,745	\$2,400	\$37,344	\$66,103	9
9	3	19	6	2	55	20		12		10
\$30,600	\$2,500	\$47,749	\$10,200	\$10,349	\$193,778	\$74,100		\$29,250		11
88	15	43	23	22	471	72	2	9	51	12
\$104,074	\$17,884	\$41,862	\$21,032	\$26,238	\$492,556	\$72,645	\$2,400	\$8,094	\$66,103	13
83	12	42	20	22	413	63	2	8	44	14
\$100,983	\$16,020	\$41,262	\$20,332	\$26,238	\$403,210	\$67,871	\$2,400	\$7,494	\$62,571	15
5	3	1	3		58	9		1	7	16
\$3,091	\$1,864	\$600	\$670		\$29,346	\$4,774		\$600	\$3,532	17
3,449	314	919	653	609	10,909	2,013	65	235	616	18
1,601	235	618	390	466	7,315	1,525	46	196	345	19
2,770	265	728	515	531	9,074	1,747	40	217	492	20
\$1,326,440	\$133,701	\$326,696	\$236,987	\$217,579	\$4,556,327	\$865,673	\$19,350	\$131,212	\$215,101	21
2,762	265	726	514	525	8,950	1,710		217	479	22
\$1,324,164	\$133,701	\$326,280	\$236,987	\$216,019	\$4,522,378	\$855,952	\$19,350	\$131,212	\$211,321	23
2				6	76	4			13	24
\$600				\$1,560	\$25,695	\$2,782			\$3,780	25
6		2	1		48	33				26
\$1,676		\$416	\$100		\$8,254	\$6,939				27
2,764	157	705	528	511	8,881	1,715	44	210	464	28
2,824	260	693	562	516	8,986	1,739	44	212	509	29
2,900	263	685	569	524	9,150	1,727	44	210	539	30
2,728	259	704	573	519	9,059	1,734	43	219	506	31
2,709	271	727	582	525	8,778	1,700	42	223	468	32
2,822	271	763	475	549	8,698	1,758	28	231	418	33
3,039	281	766	413	574	8,893	1,751	19	233	411	34
3,162	270	739	424	529	8,830	1,747	41	227	452	35
2,967	279	720	511	535	8,706	1,709	41	222	475	36
2,559	278	734	519	519	9,002	1,667	44	206	516	37
2,085	289	721	525	485	9,069	1,645	45	204	495	38
2,785	293	755	537	514	9,348	1,619	45	207	495	39
2				6	92				16	40
3				6	86				10	41
3				6	80				15	42
3				6	74				15	43
3				6	72				17	44
3				6	64	2			12	45
3				6	67	2			12	46
3				6	62	5			11	47
				6	61	8			11	48
				6	87	9			11	49
2				6	90	11			11	50
2				6	77	11			15	51
6		2			45	47				52
7		2			52	38				53
5		2			50	42				54
5		2			47	35				55
6		2			43	24				56
5		2	4		41	27				57
7		2	3		44	28				58
6		2	3		48	27				59
8		2	2		43	26				60
5		2			51	32				61
7		2			58	33				62
5		2			54	37				63
\$427,961	\$45,655	\$266,140	\$65,473	\$66,919	\$1,942,733	\$449,649	\$3,016	\$75,530	\$100,454	64
\$19,240	\$2,530	\$2,100	\$1,947	\$3,751	\$62,430	\$80	\$560	\$1,440	\$1,900	65
\$28,817	\$3,787	\$17,055	\$5,699	\$4,992	\$103,956	\$55,586	\$473	\$3,951	\$6,243	66
\$379,904	\$39,338	\$246,985	\$57,367	\$58,176	\$1,737,839	\$393,504	\$1,983	\$70,139	\$92,311	67
			\$460		\$38,508	\$479				68
\$8,173,788	\$764,318	\$2,807,259	\$1,973,701	\$1,482,680	\$23,040,897	\$7,271,023	\$88,016	\$734,478	\$1,326,376	69
\$7,109,142	\$628,368	\$2,151,197	\$1,580,501	\$992,750	\$16,676,365	\$5,805,403	\$66,278	\$564,627	\$524,999	70
707,441	119,754	325,826	279,491	163,734	1,126,634	1,126,456	11,726	95,875	73,959	71
\$2,537,379	\$605,800	\$2,099,282	\$1,216,341	\$887,602	\$4,789,002	\$5,292,740	\$66,075	\$564,374	\$280,303	72
2,291,546	4,942	1,676	1,610	312,951	4,005,400	312,951	40	77	3,612	73
\$3,378,153	\$13,697	\$1,426	\$1,502	\$45,469	\$4,673,907	\$287,889	\$20	\$115	\$4,750	74
2,556		24			6,890		10			75
\$5,172		\$24			\$9,225		\$4			76
		636			30,000		22	60	420,000	77
		\$183			\$7,500		\$4	\$60	\$130,000	78
2,065,943	50	72,496	2,032,800	117,750	8,429,140	593,989	300	52	165,884	79
\$1,075,737	\$25	\$50,282	\$362,008	\$52,100	\$3,188,877	\$224,754	\$175	\$78	\$109,946	80
136,811	20,500		400	264	50,000		25			81
\$112,701	\$8,846		\$650	\$79	\$27,407	\$20				82

TABLE 12.—LEATHER, TANNED, CURRIED, AND FINISHED—

		United States.	Alabama.	California.	Connecticut.	Delaware.	Georgia.
83	Material used—Continued.						
	Tanning materials—						
	Total cost.....	\$25,029,994	\$111,067	\$921,106	\$58,142	\$614,899	\$295,855
	Hemlock bark—						
84	Cords.....	1,000,328			900		26
85	Cost.....	\$8,471,292			\$6,300		\$180
	Oak bark—						
86	Cords.....	422,269	1,142	35,690	134		15,262
87	Cost.....	\$3,765,509	\$9,424	\$695,692	\$1,206		\$110,186
	Gambier—						
88	Bales.....	80,610		7,735	124		
89	Cost.....	\$752,347		\$70,079	\$1,098		
	Hemlock bark extract—						
90	Barrels.....	21,766		122	373	1,008	150
91	Cost.....	\$265,665		\$2,204	\$4,792	\$10,275	\$2,094
	Oak bark extract—						
92	Barrels.....	214,391	700	3,276	2,561	190	3,890
93	Cost.....	\$2,300,395	\$4,123	\$50,563	\$27,039	\$2,680	\$39,302
94	Quebracho, cost.....	\$2,490,487	\$14,719	\$5,575	\$5,141		\$98,567
	Sumac—						
95	Tons.....	7,958		184	102	20	1
96	Cost.....	\$338,614		\$12,496	\$4,209	\$900	\$64
97	Chemicals, cost.....	\$2,847,441	\$1,430	\$41,464	\$5,158	\$349,848	\$11,108
98	All other materials used in tanning, cost.....	\$3,798,244	\$81,371	\$43,033	\$3,199	\$251,196	\$34,354
	Currying materials—						
99	Total cost.....	\$14,659,841	\$1,505	\$249,610	\$73,032	\$138,201	\$23,970
	Purchased rough—						
100	Total cost.....	\$10,852,655		\$113,160	\$62,854	\$126,207	
	Rough leather—						
101	Sides.....	2,414,102		21,372	7,483	19,250	
102	Cost.....	\$8,136,661		\$112,200	\$10,416	\$73,536	
	Rough grains—						
103	Sides.....	342,332			5,568		
104	Cost.....	\$980,260			\$15,197		
	Rough splits—						
105	Sides.....	1,365,720		1,200	730		
106	Cost.....	\$1,108,243		\$960	\$1,011		
107	All other rough leather, cost.....	\$627,491			\$36,230	\$52,671	
108	Oil, stearin, degreas, tallow, and all other materials used in currying.....	\$3,807,186	\$1,505	\$136,450	\$10,178	\$11,994	\$23,970
	Fuel.....	\$2,056,075	\$11,676	\$48,525	\$9,387	\$66,926	\$18,354
110	Rent of power and heat.....	\$58,610		\$9,184	\$1,948	\$900	\$1,000
111	Mill supplies.....	\$281,613	\$416	\$5,135	\$830	\$11,889	\$1,091
112	All other materials.....	\$2,376,740	\$26,325	\$63,673	\$7,408	\$95,594	\$11,752
113	Freight.....	\$1,248,275	\$1,750	\$22,448	\$3,883	\$82,939	\$30,119
	Products—						
114	Aggregate value.....	\$252,620,986	\$844,403	\$8,072,257	\$748,038	\$10,250,842	\$2,382,127
	Sold in the rough—						
	Total—						
115	Sides.....	4,678,292		140,655	14,417		20,848
116	Value.....	\$10,180,949		\$352,799	\$5,055		\$41,051
	Rough leather—						
117	Sides.....	2,054,281		79,405			20,848
118	Value.....	\$7,801,249		\$337,694			\$41,051
	Rough grains—						
119	Sides.....	258,624					
120	Value.....	\$584,418					
	Rough splits—						
121	Sides.....	2,365,387		61,250	14,417		
122	Value.....	\$1,795,282		\$15,105	\$5,055		
	Sole leather—						
	Total—						
123	Sides.....	1,179,937,938	128,898	575,393		44,020	314,435
124	Value.....	\$69,205,600	\$800,384	\$2,971,579		\$77,238	\$1,493,979
	Oak—						
125	Sides.....	1,360,763	128,898	575,393			314,435
126	Value.....	\$19,157,805	\$800,384	\$2,971,579			\$1,493,979
	Union—						
127	Sides.....	4,400,011					
128	Value.....	\$17,371,780					
	Hemlock—						
129	Sides.....	9,029,964				44,020	
130	Value.....	\$32,676,015				\$77,238	
	Upper leather (other than calf, kip, or colt skins)—						
131	Total value.....	\$25,705,315		\$114,903	\$3,120	\$119,695	\$8,782
	Grain, satin, kangaroo, etc. (side leather)—						
132	Sides.....	6,850,469		22,780			3,450
133	Value.....	\$15,487,252		\$69,680			\$5,550
	Finished splits—						
134	Number.....	6,205,050		83,832			3,000
135	Value.....	\$5,993,231		\$32,623			\$3,232
	Patent and enameled shoe leather—						
136	Sides.....	1,356,777			841	30,802	
137	Value.....	\$3,335,352			\$3,120	\$119,695	
	Horsehide—						
138	Sides.....	412,367		7,200			
139	Value.....	\$889,480		\$12,600			
	Coltskins—						
140	Number.....	1,323,211					
141	Value.....	\$3,706,585					
	Calf and kip skins, tanned and finished—						
	Total—						
142	Number.....	12,355,765		106,571		110	2,525
143	Value.....	\$23,372,365		\$241,728		\$285	\$6,158
	Flesh finished—						
144	Number.....	1,802,338		68,688			2,525
145	Value.....	\$3,511,784		\$142,749			\$6,158
	Grain finished—						
146	Number.....	10,211,885		37,883		110	
147	Value.....	\$18,996,551		\$98,979		\$285	
	Patent and enameled—						
148	Number.....	341,542					
149	Value.....	\$864,030					

¹ Includes 432,714 sides of oak sole leather, valued at \$2,290 \$69, manufactured by single establishments in the states of Illinois, Massachusetts, Minnesota, New York, and Ohio.

DETAILED SUMMARY, BY STATES: 1905—Continued.

Illinois.	Indiana.	Kentucky.	Maine.	Maryland.	Massachusetts.	Michigan.	Minnesota.	Missouri.	New Hampshire.	
\$689,239	\$92,181	\$494,718	\$298,619	\$224,430	\$2,621,527	\$1,100,942	\$11,898	\$80,521	\$77,202	83
17,679	170	575	25,695	1,869	47,246	101,305	450	1,140	2,713	84
\$169,630	\$1,800	\$4,987	\$178,143	\$16,105	\$495,303	\$320,680	\$3,400	\$12,471	\$24,890	85
	4,316	27,747	40	14,366	1,196			3,670		86
	\$44,547	\$257,817	\$300	\$134,322	\$19,305			\$43,847		87
15,663			301		11,317	799	66	15	197	88
\$149,871			\$2,852		\$114,797	\$6,319	\$640	\$121	\$1,845	89
417	800	279	408		9,108	2,314	9		160	90
\$4,180	\$7,470	\$3,412	\$4,483		\$122,879	\$27,192	\$138	\$140	\$2,161	91
185	2,720	17,412	4,460	1,802	16,166	3,749	26	5		92
\$1,850	\$25,678	\$169,225	\$44,810	\$16,132	\$190,076	\$36,923	\$403	\$51		93
\$58,618	\$8,540	\$41,404	\$33,208	\$27,332	\$156,413	\$39,527	\$6,012	\$20,511	\$8,817	94
269	51	111	48	92	3,637	86		1	22	95
\$11,990	\$2,050	\$1,761	\$2,946	\$3,852	\$159,419	\$3,248		\$38	\$872	96
\$68,944		\$7,272	\$8,546	\$5,090	\$672,246	\$85,148	\$950	\$650	\$6,894	97
\$224,156	\$2,096	\$8,840	\$23,331	\$21,597	\$701,089	\$81,905	\$355	\$2,692	\$31,723	98
\$199,113	\$29,802	\$68,398	\$16,570	\$149,449	\$2,531,744	\$192,201	\$1,063	\$72,130	\$684,108	99
\$59,364			\$3,790	\$147,994	\$1,893,843			\$3,055	\$617,019	100
			1,200	8,935	301,589				102,726	101
			\$2,990	\$37,994	\$951,620				\$287,697	102
11,000				10,400	22,607				99,044	103
\$30,000				\$30,000	\$86,758				\$329,322	104
8,000			300		813,640					105
\$17,000			\$500		\$723,847					106
\$12,364			\$300	\$80,000	\$131,618			\$3,055		107
\$139,749	\$29,802	\$68,398	\$12,780	\$1,455	\$637,901	\$192,201	\$1,063	\$99,075	\$67,089	108
\$72,264	\$10,357	\$29,454	\$22,949	\$14,585	\$325,830	\$76,264	\$4,940	\$11,989	\$11,941	109
\$4,400			\$54		\$16,348	\$2,150	\$135		\$18	110
\$9,566	\$1,350	\$2,745	\$4,597	\$1,032	\$51,467	\$7,483	\$155	\$1,189	\$990	111
\$43,125	\$2,010	\$42,245	\$7,113	\$84,023	\$729,312	\$20,132	\$3,099	\$3,893	\$11,078	112
\$46,939	\$250	\$18,502	\$43,298	\$16,411	\$88,304	\$66,448	\$448	\$129	\$16,040	113
\$10,758,196	\$1,050,945	\$3,952,277	\$2,500,146	\$1,911,348	\$33,352,999	\$9,340,349	\$132,533	\$1,128,382	\$1,773,611	114
128,100	15,000	54,160	5,000	11,356	136,808	202,402	68			115
\$59,460	\$12,000	\$261,930	\$5,025	\$49,164	\$179,152	\$72,447	\$340			116
		54,160		11,356	19,479	4,125	\$3			117
		\$261,930		\$49,164	\$71,173	\$16,708	\$340			118
						2,800				119
						\$5,000				120
128,100	15,000		5,000		117,329	195,477				121
\$59,460	\$12,000		\$5,025		\$107,979	\$50,739				122
103,198	10,600	393,808	484,600	126,034	75,200	1,353,293				123
\$460,000	\$61,800	\$2,117,495	\$1,493,440	\$622,360	\$229,236	\$4,954,749				124
(2)	10,600	393,808		126,034	(2)	(2)				125
	\$61,800	\$2,117,495		\$622,360						126
					60,000					127
					\$208,655					128
103,198			484,600		15,200	1,353,293				129
\$460,000			\$1,493,440		\$20,581	\$4,954,749				130
\$1,676,307		\$48	\$138,679	\$205,267	\$7,843,165	\$1,426,455	\$14,120		\$350,940	131
364,950			49,863	2,100	1,881,547	406,235	4,000		91,841	132
\$828,060			\$108,590	\$8,217	\$4,180,031	\$871,573	\$12,000		\$185,368	133
160,800			20,000	170,000	2,357,182	532,757	4,000		139,646	134
\$123,000			\$27,689	\$159,500	\$2,667,982	\$554,882	\$2,000		\$60,572	135
51,671				10,400	506,450				34,546	136
\$107,643				\$37,550	\$981,551				\$105,000	137
269,786		24	600		12,822		20			138
\$617,604		\$48	\$2,400		\$13,601		\$120			139
		24			6,800		10			140
		\$35			\$15,683		\$10			141
2,293,950	250	5,033	1,271	41,760	4,041,330	312,591	40		3,112	142
\$4,741,324	\$1,150	\$12,850	\$3,072	\$64,539	\$7,463,088	\$512,333	\$32		\$8,540	143
176,735	250	200	160	36,500	88,377	301,991	40			144
\$444,307	\$1,150	\$600	\$320	\$46,650	\$186,104	\$489,198	\$32			145
2,117,215		4,833	1,111	5,060	3,705,070	10,600			3,112	146
\$4,297,017		\$12,250	\$2,752	\$17,019	\$6,569,889	\$23,135			\$8,540	147
				200	247,883					148
				\$870	\$707,095					149

* Value of oak sole leather included in "all other products, including by-products, glue stock, etc.," to avoid disclosing individual operations.

TABLE 12.—LEATHER, TANNED, CURRIED, AND FINISHED—

		United States.	Alabama.	California.	Connecticut.	Delaware.	Georgia.
Products—Continued.							
Goatskins, tanned and finished—							
Total—							
150	Number.....	45,691,492	25	3,000	-----	10,928,313	825
151	Value.....	\$37,887,349	\$12	\$12,000	-----	\$9,102,297	\$1,314
Black—							
152	Number.....	40,019,614	25	2,000	-----	9,396,211	825
153	Value.....	\$32,822,282	\$12	\$8,000	-----	\$7,640,780	\$1,314
Colored—							
154	Number.....	5,671,878	-----	1,000	-----	1,532,102	-----
155	Value.....	\$5,065,067	-----	\$4,000	-----	\$1,461,517	-----
Sheepskins, tanned and finished—							
156	Number.....	20,597,598	-----	1,012,816	48,000	463,404	212
157	Value.....	\$11,168,829	-----	\$341,262	\$40,000	\$281,754	\$64
Belting leather—							
158	Sides.....	859,564	-----	-----	37,913	27,844	2,000
159	Value.....	\$4,754,456	-----	-----	\$292,056	\$123,165	\$12,400
Harness leather—							
160	Sides.....	4,369,561	10,766	339,041	4,378	-----	253,575
161	Value.....	\$20,274,188	\$33,570	\$1,904,647	\$16,648	-----	\$700,040
Carriage leather—							
162	Number of hides.....	622,836	-----	-----	7,830	-----	-----
163	Value.....	\$5,453,157	-----	-----	\$42,130	-----	-----
164	Trunk, bag, and pocketbook leather.....	\$4,920,750	-----	\$46,800	\$21,450	\$35,000	-----
165	Bookbinders' leather.....	\$2,283,761	-----	-----	\$157,200	\$85,200	-----
166	Leather for manufacture of gloves.....	\$3,344,614	-----	\$530,480	-----	-----	-----
Furniture leather—							
167	Number of hides.....	204,268	-----	-----	1,118	-----	-----
168	Value.....	\$2,327,647	-----	-----	\$7,559	-----	-----
169	All other leather, including offal leather.....	\$12,180,238	\$4,980	\$680,318	\$156,809	\$44,202	\$12,625
170	All other products, including by-products, glue stock, etc.	\$7,665,223	\$5,457	\$867,855	\$6,006	\$331,638	\$32,700
171	Amount charged for tanning, currying, or finishing for others.....	\$8,189,960	-----	\$7,886	\$5	\$50,368	\$73,014
Custom work, stock tanned or finished for others:							
For tanners, curriers, and finishers—							
Hides tanned—							
172	Number.....	860,918	-----	2,020	-----	-----	-----
173	Estimated value.....	\$6,109,481	-----	\$14,605	-----	-----	-----
Skins tanned—							
174	Number.....	2,646,632	-----	-----	-----	180,000	-----
175	Estimated value.....	\$1,658,168	-----	-----	-----	\$126,000	-----
Sides curried—							
176	Number.....	331,385	-----	2,330	-----	-----	-----
177	Estimated value.....	\$1,046,675	-----	\$17,330	-----	-----	-----
Splits curried—							
178	Number.....	390,366	-----	-----	-----	-----	-----
179	Estimated value.....	\$412,366	-----	-----	-----	-----	-----
Skins curried or finished—							
180	Number.....	3,672,590	-----	200	-----	-----	-----
181	Estimated value.....	\$3,405,291	-----	\$600	-----	-----	-----
For others, not tanners, curriers, or finishers—							
Hides tanned—							
182	Number.....	426,096	-----	-----	-----	-----	36,293
183	Estimated value.....	\$2,922,995	-----	-----	-----	-----	\$499,372
Skins tanned—							
184	Number.....	13,279,613	-----	350	9	-----	-----
185	Estimated value.....	\$8,587,529	-----	\$11,000	\$25	-----	-----
Sides curried—							
186	Number.....	1,070,669	-----	-----	-----	-----	-----
187	Estimated value.....	\$2,702,039	-----	-----	-----	-----	-----
Splits curried—							
188	Number.....	341,753	-----	-----	-----	-----	-----
189	Estimated value.....	\$402,813	-----	-----	-----	-----	-----
Skins curried or finished—							
190	Number.....	12,208,534	-----	86	-----	35,951	-----
191	Estimated value.....	\$8,821,397	-----	\$258	-----	\$107,850	-----
Power:							
192	Number of establishments reporting.....	909	2	46	5	20	20
193	Total horsepower.....	129,975	1,315	3,829	391	5,585	1,161
Owned—							
Engines—							
Steam—							
194	Number.....	1,524	9	53	12	33	23
195	Horsepower.....	107,510	1,040	2,936	271	5,357	1,081
Gas or gasoline—							
196	Number.....	77	-----	1	1	-----	-----
197	Horsepower.....	5,086	-----	10	10	-----	-----
Water wheels—							
198	Number.....	62	-----	-----	2	-----	-----
199	Horsepower.....	1,935	-----	-----	40	-----	-----
Water motors—							
200	Number.....	2	-----	-----	-----	-----	2
201	Horsepower.....	20	-----	-----	-----	-----	20
Electric motors—							
202	Number.....	589	8	50	1	11	-----
203	Horsepower.....	12,525	275	538	20	208	-----
204	Other power, horsepower.....	40	-----	-----	-----	-----	-----
Rented—							
Electric motors—							
205	Number.....	142	-----	16	-----	2	2
206	Horsepower.....	2,014	-----	305	-----	20	60
207	Other kind, horsepower.....	845	-----	40	50	-----	-----
208	Furnished to other establishments, horsepower.....	248	-----	18	-----	-----	-----

¹ Includes \$2,290,869, the value of oak sole leather manufactured by single establishments located in the states of Illinois, Massachusetts, Minnesota, New York, and Ohio.

LEATHER, TANNED, CURRIED, AND FINISHED.

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DETAILED SUMMARY, BY STATES: 1905—Continued.

Illinois.	Indiana.	Kentucky.	Maine.	Maryland.	Massachusetts.	Michigan.	Minnesota.	Missouri.	New Hampshire.	
		636		30,000	6,878,955		22		420,000	150
		\$393		\$24,000	\$5,277,991		\$11		\$225,000	151
		636		30,000	4,972,847		22		348,000	152
		\$393		\$24,000	\$3,922,335		\$11		\$150,000	153
					1,906,108				72,000	154
					\$1,355,656				\$75,000	155
1,696,713	50	42,734	2,032,800	112,750	6,892,980	593,964	300	52	136,836	156
\$964,099	\$50	\$23,951	\$587,416	\$84,200	\$3,900,146	\$218,634	\$350	\$78	\$59,922	157
	7,300	9,596		5,000	230,870			64,800	37,747	158
	\$45,800	\$69,129		\$11,250	\$1,350,481			\$284,481	\$226,507	159
53,674	231,192	187,632		11,765		195,695	6,310	124,219	70,984	160
\$267,890	\$877,353	\$1,075,228		\$68,249		\$854,690	\$25,310	\$675,019	\$186,470	161
				22,100	11,996	5,200				162
				\$110,450	\$76,813	\$23,900				163
\$527,754	\$27,414			\$470,500	\$372,896	\$788,535			\$1,000	164
\$27,820					\$4,530	\$93,600				165
\$707,419						\$50				166
					1,536	1,200				167
					\$2,304	\$10,200				168
\$573,641	\$8,000	\$212,951	\$89,528	\$52,455	\$1,057,975	\$78,842	\$1,040	\$37,874	\$489,202	169
\$748,703	\$15,205	\$90,094	\$13,562	\$74,952	\$2,851,199	\$153,650	\$62,800	\$125,070	\$109,546	170
\$3,779	\$2,173	\$88,173	\$169,424	\$73,962	\$2,728,340	\$152,264	\$28,520	\$5,860	\$116,484	171
247	2,000		2,000		111,550	100,915				172
\$1,232	\$12,000		\$20,000		\$659,627	\$1,403,660				173
	4,500		1,352,784		509,559					174
	\$4,500		\$431,022		\$524,500					175
			6,000	40	129,633			9,400		176
			\$30,000	\$270	\$194,060			\$27,026		177
					137,784					178
					\$134,442					179
					1,191,589					180
					\$908,323					181
1,131	30	32,765	2,382	32,200	218,377	9,730	6,215	600	6,928	182
\$6,886	\$180	\$327,538	\$15,700	\$210,222	\$1,332,870	\$61,386	\$55,420	\$3,500	\$30,613	183
608			1,212,560		3,459,516	50	5,000		1,000	184
\$560			\$294,848		\$1,808,814	\$150	\$5,200		\$1,500	185
					1,070,387		20			186
					\$2,701,279		\$160			187
					336,988					188
					\$394,666					189
33,064				4,500	6,290,135		300		670,988	190
\$13,860				\$928	\$3,853,407		\$500		\$330,385	191
26	10	18	24	13	124	22	5	8	8	192
5,520	642	1,824	2,352	1,130	15,469	4,439	281	576	1,280	193
45	17	41	29	24	157	46	3	9	8	194
5,080	614	1,766	1,591	982	14,444	3,896	170	546	1,185	195
	1		1		2	2				196
	10		6		50	100				197
			8		7					198
			180		204				62	199
										200
										201
19	2	3	14	9	8	10	9	1	3	202
260	18	58	565	148	166	48	100	30	25	203
										204
2			1		13	16	2		1	205
30			10		317	365	11		8	206
150					288	30				207
50			2		2	30		10		208

* Includes the value of oak sole leather, to avoid disclosing individual operations.

TABLE 12.—LEATHER, TANNED, CURRIED, AND FINISHED—

	New Jersey.	New York.	North Carolina.	Ohio.	Oregon.	Pennsylvania.
1 Number of establishments.....	73	118	34	40	11	205
2 Capital:						
3 Total.....	\$12,492,373	\$24,037,904	\$2,568,965	\$6,015,341	\$272,048	\$72,972,114
4 Land.....	\$1,105,340	\$792,399	\$90,476	\$264,452	\$19,150	\$2,256,526
5 Buildings.....	\$1,522,044	\$3,660,768	\$320,773	\$1,245,710	\$44,600	\$9,128,518
6 Machinery, tools, and implements.....	\$1,175,103	\$4,080,233	\$191,577	\$425,793	\$29,700	\$5,535,476
7 Cash and sundries.....	\$8,689,286	\$15,504,504	\$1,966,139	\$4,979,386	\$178,598	\$56,051,494
8 Proprietors and firm members.....	63	158	45	34	15	216
9 Salaried officials, clerks, etc.:						
10 Total number.....	342	241	37	94	.....	754
11 Total salaries.....	\$500,917	\$340,309	\$61,265	\$142,455	.....	\$927,434
12 Officers of corporations—						
13 Number.....	60	25	10	28	.....	64
14 Salaries.....	\$214,720	\$107,400	\$26,500	\$53,680	.....	\$190,961
15 General superintendents, managers, clerks, etc.—						
16 Total number.....	282	216	27	66	.....	690
17 Total salaries.....	\$286,197	\$232,909	\$34,765	\$88,775	.....	\$736,473
18 Men—						
19 Number.....	256	201	24	55	.....	654
20 Salaries.....	\$273,659	\$226,786	\$33,460	\$82,009	.....	\$719,488
21 Women—						
22 Number.....	26	15	3	11	.....	36
23 Salaries.....	\$12,538	\$6,123	\$1,305	\$6,766	.....	\$16,985
24 Wage-earners, including pieceworkers, and total wages:						
25 Greatest number employed at any one time during the year.....	5,980	6,579	723	1,794	112	16,963
26 Least number employed at any one time during the year.....	4,237	4,472	389	1,448	88	11,881
27 Average number.....	4,953	5,444	534	1,610	94	14,413
28 Total wages.....	\$2,793,327	\$2,485,162	\$149,258	\$839,171	\$67,365	\$6,417,750
29 Men 16 years and over—						
30 Average number.....	4,817	5,296	532	1,600	94	13,328
31 Wages.....	\$2,763,791	\$2,445,240	\$149,008	\$836,810	\$67,365	\$6,133,957
32 Women 16 years and over—						
33 Average number.....	38	146	.....	1	.....	578
34 Wages.....	\$9,107	\$39,587	.....	\$355	.....	\$171,728
35 Children under 16 years—						
36 Average number.....	98	2	2	9	.....	507
37 Wages.....	\$20,429	\$335	\$250	\$2,006	.....	\$112,065
38 Average number of wage-earners, including pieceworkers, employed during each month:						
39 Men 16 years and over—						
40 January.....	4,623	5,252	504	1,570	92	13,030
41 February.....	4,643	5,408	526	1,580	95	13,229
42 March.....	4,716	5,282	526	1,595	91	13,578
43 April.....	4,734	5,200	519	1,591	87	13,578
44 May.....	4,862	5,259	553	1,689	90	13,514
45 June.....	4,961	5,232	624	1,623	91	13,463
46 July.....	4,883	5,312	578	1,603	93	13,469
47 August.....	4,840	5,276	554	1,570	97	13,546
48 September.....	4,800	5,322	555	1,564	94	13,692
49 October.....	4,764	5,408	492	1,597	101	13,355
50 November.....	5,016	5,311	487	1,635	98	12,677
51 December.....	4,962	5,290	466	1,633	99	12,815
52 Women 16 years and over—						
53 January.....	32	165	.....	1	.....	560
54 February.....	32	177	.....	1	.....	555
55 March.....	30	177	.....	1	.....	601
56 April.....	30	162	.....	1	.....	595
57 May.....	31	143	.....	1	.....	599
58 June.....	32	139	.....	1	.....	534
59 July.....	33	139	.....	1	.....	584
60 August.....	34	136	.....	1	.....	605
61 September.....	50	129	.....	1	.....	598
62 October.....	51	140	.....	1	.....	621
63 November.....	48	121	.....	1	.....	563
64 December.....	53	124	.....	1	.....	521
65 Children under 16 years—						
66 January.....	91	3	3	9	.....	455
67 February.....	91	3	3	9	.....	477
68 March.....	90	2	3	9	.....	497
69 April.....	95	1	3	9	.....	515
70 May.....	102	1	3	9	.....	499
71 June.....	104	1	3	9	.....	517
72 July.....	103	2	1	9	.....	522
73 August.....	104	2	1	9	.....	530
74 September.....	101	2	1	9	.....	516
75 October.....	86	1	1	9	.....	506
76 November.....	102	3	1	9	.....	511
77 December.....	107	3	1	9	.....	539
78 Miscellaneous expenses:						
79 Total.....	\$873,542	\$980,851	\$93,209	\$336,888	\$11,115	\$4,049,820
80 Rent of works.....	\$42,384	\$41,812	.....	\$2,745	.....	\$141,374
81 Taxes.....	\$44,526	\$36,574	\$9,527	\$26,833	\$1,163	\$135,771
82 Rent of offices, interest, insurance, and all other sundry expenses not hitherto included.....	\$646,104	\$885,679	\$83,632	\$264,901	\$9,952	\$3,139,477
83 Contract work.....	\$140,528	\$16,786	\$50	\$42,409	.....	\$633,198
84 Materials used:						
85 Aggregate cost.....	\$15,272,124	\$16,274,903	\$2,038,036	\$4,462,093	\$366,757	\$55,411,927
86 Hides and skins—						
87 Total cost.....	\$7,852,411	\$12,774,019	\$1,670,867	\$3,524,131	\$285,764	\$43,129,248
88 Hides, all kinds—						
89 Number.....	562,709	1,569,750	280,197	403,655	52,469	5,447,947
90 Cost.....	\$4,724,062	\$7,804,223	\$1,667,468	\$2,843,670	\$282,394	\$26,416,581
91 Calf and kip skins—						
92 Number.....	109,436	1,135,591	2,850	503,787	3,530	292,500
93 Cost.....	\$91,529	\$1,083,158	\$2,740	\$642,503	\$3,070	\$501,930
94 Coltskins—						
95 Number.....	25,828	59,246	.....	4,000	.....	1,234,680
96 Cost.....	\$48,074	\$88,525	.....	\$2,000	.....	\$1,849,392
97 Goatskins—						
98 Number.....	3,411,843	1,047,414	1,167	3,500	100	24,220,530
99 Cost.....	\$1,707,241	\$659,312	\$286	\$2,000	\$100	\$13,646,179
100 Sheepskins—						
101 Number.....	1,715,076	7,124,420	1,420	24,360	200	2,402,204
102 Cost.....	\$674,412	\$2,708,110	\$318	\$21,853	\$50	\$715,166
103 All other skins—						
104 Number.....	667,310	595,788	50	40,300	300	.....
105 Cost.....	\$607,093	\$430,691	\$55	\$12,105	\$150

LEATHER, TANNED, CURRIED, AND FINISHED.

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DETAILED SUMMARY, BY STATES: 1905—Continued.

Rhode Island.	South Carolina.	Tennessee.	Texas.	Vermont.	Virginia.	Washington.	West Virginia.	Wisconsin.	All other states. ¹	
6	3	29	5	4	44	3	33	33	9	1
\$252,972	\$17,080	\$4,013,289	\$23,400	\$201,466	\$4,635,224	\$37,950	\$8,750,696	\$30,409,164	\$39,820	2
\$27,000	\$890	\$111,052	\$3,800	\$7,000	\$169,008	\$10,000	\$300,631	\$1,480,390	\$3,700	3
\$19,981	\$1,850	\$577,678	\$3,900	\$24,200	\$519,992	\$7,800	\$837,973	\$4,631,548	\$12,800	4
\$34,910	\$5,140	\$596,224	\$3,200	\$13,600	\$269,649	\$8,200	\$603,736	\$5,299,492	\$8,470	5
\$171,081	\$9,200	\$2,728,335	\$12,500	\$156,666	\$3,676,575	\$11,950	\$7,008,356	\$18,997,734	\$14,850	6
7	2	28	5	2	43	5	49	27	10	7
8	1	40	2	7	71	—	48	322	2	8
\$14,080	\$200	\$63,736	\$1,100	\$6,040	\$95,032	—	\$88,514	\$457,702	\$930	9
3	—	6	—	3	16	—	6	25	1	10
\$9,000	—	\$27,598	—	\$4,500	\$39,048	—	\$42,527	\$136,267	\$500	11
5	1	34	2	1	55	—	42	297	1	12
\$5,080	\$200	\$36,138	\$1,100	\$1,540	\$55,984	—	\$45,987	\$321,435	\$330	13
4	1	33	2	—	53	—	40	279	1	14
\$4,900	\$200	\$35,738	\$1,100	—	\$55,259	—	\$45,017	\$311,659	\$330	15
1	—	1	—	4	2	—	2	18	—	16
\$180	—	\$400	—	\$1,540	\$725	—	\$970	\$9,776	—	17
105	13	878	24	68	1,329	8	1,268	6,184	39	18
68	11	618	21	49	927	8	776	4,885	21	19
87	11	736	22	60	1,055	8	946	5,556	24	20
\$48,275	\$1,286	\$251,665	\$8,242	\$27,066	\$357,699	\$5,752	\$434,263	\$2,686,904	\$13,174	21
81	4	736	22	60	1,022	8	946	5,386	22	22
\$46,268	\$1,286	\$251,665	\$8,242	\$27,066	\$353,751	\$5,752	\$434,263	\$2,637,406	\$12,456	23
5	—	—	—	—	1	—	—	119	2	24
\$2,007	—	—	—	—	\$230	—	—	\$36,860	\$718	25
—	—	—	—	—	82	—	—	51	—	26
—	—	—	—	—	\$3,718	—	—	\$12,638	—	27
81	1	732	24	60	921	8	892	5,560	29	28
84	2	757	24	64	917	8	911	5,512	30	29
89	3	739	22	89	959	8	941	5,466	27	30
87	3	725	22	62	949	8	935	5,487	25	31
84	1	731	22	55	996	8	960	5,459	20	32
78	—	763	22	53	1,102	8	1,028	5,335	19	33
75	—	750	21	53	1,121	8	1,049	5,385	18	34
77	—	742	21	58	1,097	8	1,050	5,360	18	35
75	8	745	21	55	1,096	8	1,010	5,225	18	36
75	9	725	21	53	1,071	8	912	5,146	19	37
81	11	712	22	60	1,029	8	816	5,232	19	38
86	10	711	22	58	1,006	8	848	5,465	22	39
1	—	—	—	—	—	—	—	115	1	40
1	—	—	—	—	—	—	—	112	1	41
5	—	—	—	—	—	—	—	108	7	42
5	—	—	—	—	—	—	—	97	7	43
6	—	—	—	—	—	—	—	103	1	44
6	—	—	—	—	—	—	—	100	1	45
8	—	—	—	—	—	—	—	114	1	46
8	—	—	—	—	—	—	—	127	1	47
8	—	—	—	—	—	—	—	141	1	48
8	—	—	—	—	—	—	—	136	1	49
8	—	—	—	—	—	—	—	138	1	50
8	—	—	—	—	—	—	—	137	1	51
—	—	—	—	—	—	—	—	—	—	52
—	—	—	—	—	—	—	—	40	—	53
—	—	—	—	—	—	—	—	46	—	54
—	—	—	—	—	—	—	—	45	—	55
—	—	—	—	—	—	—	—	45	—	56
—	—	—	—	—	—	—	—	46	—	57
—	—	—	—	—	—	—	—	44	—	58
—	—	—	—	—	—	—	—	56	—	59
—	—	—	—	—	—	—	—	64	—	60
—	—	—	—	—	—	—	—	59	—	61
—	—	—	—	—	—	—	—	57	—	62
—	—	—	—	—	—	—	—	55	—	63
—	—	—	—	—	—	—	—	55	—	64
\$13,320	\$99	\$140,511	\$1,259	\$25,136	\$253,094	\$1,641	\$246,136	\$1,291,921	\$1,888	65
\$1,050	—	\$1,035	\$300	—	\$5,010	—	\$85	\$7,740	\$139	66
\$1,045	—	\$8,428	\$89	\$367	\$14,349	\$235	\$16,688	\$102,762	\$227	67
\$11,225	\$35	\$131,048	\$870	\$24,769	\$233,735	\$1,406	\$229,363	\$1,181,419	\$1,522	68
—	—	—	—	—	—	—	—	—	—	69
\$228,471	\$6,342	\$2,851,259	\$34,986	\$277,286	\$4,719,206	\$41,108	\$4,769,123	\$19,870,887	\$32,892	70
\$193,867	\$4,800	\$2,226,410	\$28,600	\$229,644	\$3,890,761	\$32,544	\$3,696,392	\$15,963,629	\$26,610	71
20,300	2,250	355,798	5,960	42,788	588,397	5,400	711,378	2,457,195	4,750	72
\$101,595	\$4,680	\$2,223,205	\$18,550	\$229,009	\$3,872,597	\$25,500	\$3,694,843	\$11,027,774	\$20,504	73
2,667	150	1,274	5,000	60	1,599	2,872	770	3,633,271	780	74
\$4,000	\$120	\$1,248	\$10,000	\$35	\$1,657	\$4,944	\$1,038	\$4,816,826	\$2,009	75
—	—	—	—	—	20	—	75	3,519	—	76
—	—	—	—	—	\$15	—	\$200	\$4,529	—	77
—	—	943	100	—	—	—	—	2	840	78
—	—	\$242	\$50	—	—	—	—	\$1	\$576	79
—	—	—	—	—	—	—	—	—	—	80
231,400	—	6,394	—	1,000	55,763	4,200	830	130,037	7,750	81
\$88,272	—	\$1,715	—	\$600	\$16,390	\$2,100	\$280	\$101,562	\$3,371	82
—	—	—	—	—	—	—	—	—	—	83
—	—	—	—	—	201	—	211	16,250	100	84
—	—	—	—	—	\$102	—	\$31	\$12,937	\$150	85

¹Includes establishments distributed as follows: Colorado, 1; Iowa, 2; Louisiana, 1; Mississippi, 2; North Dakota, 1; South Dakota, 1; Utah, 1.

TABLE 12.—LEATHER, TANNED, CURRIED, AND FINISHED—

		New Jersey.	New York.	North Carolina.	Ohio.	Oregon.	Pennsylvania.
Materials used—Continued.							
83	Tanning materials—						
	Total cost.....	\$1,094,884	\$2,151,808	\$283,725	\$590,549	\$54,374	\$8,765,151
84	Hemlock bark—						
	Cords.....	2,992	110,117	300	4,869	1,845	439,151
85	Cost.....	\$27,124	\$978,935	\$2,100	\$47,295	\$21,802	\$3,916,030
86	Oak bark—						
	Cords.....	15,940	2,008	33,878	17,079	1,330	81,414
87	Cost.....	\$179,384	\$18,996	\$256,950	\$181,334	\$27,018	\$492,258
88	Gambier—						
	Bales.....	10,043	7,310	40	452	62	1,677
89	Cost.....	\$89,359	\$65,608	\$200	\$4,796	\$692	\$19,440
	Hemlock bark extract—						
90	Barrels.....	1,423	875	9	280	.....	1,157
91	Cost.....	\$15,854	\$11,595	\$140	\$3,154	.....	\$14,097
92	Oak bark extract—						
	Barrels.....	8,573	7,605	1,985	25,391	71	98,055
93	Cost.....	\$82,676	\$65,952	\$17,932	\$252,277	\$1,268	\$1,158,749
94	Quebracho, cost.....	\$167,496	\$270,650	\$5,075	\$79,975	\$1,620	\$1,182,708
	Sumac—						
95	Tons.....	1,262	1,696	.....	142	4	142
96	Cost.....	\$48,853	\$67,724	.....	\$5,473	\$160	\$6,438
97	Chemicals, cost.....	\$181,635	\$193,135	\$30	\$6,755	\$930	\$1,023,380
98	All other materials used in tanning, cost.....	\$302,503	\$479,213	\$1,298	\$9,490	\$884	\$952,051
99	Currying materials—						
	Total cost.....	\$5,733,357	\$746,159	\$26,844	\$126,508	\$11,661	\$2,318,709
100	Purchased rough—						
	Total cost.....	\$5,456,993	\$282,738	\$3,125	\$23,871	.....	\$1,573,689
101	Rough leather—						
	Sides.....	1,408,668	52,172	1,250	6,900	.....	306,680
102	Cost.....	\$4,521,995	\$180,147	\$3,125	\$23,871	.....	\$1,464,027
103	Rough grains—						
	Sides.....	174,713	9,000	.....	.....	.....	10,000
104	Cost.....	\$430,283	\$26,300	.....	.....	.....	\$32,400
105	Rough splits—						
	Sides.....	535,750	6,050	.....	.....	.....	.....
106	Cost.....	\$360,215	\$4,650	.....	.....	.....	.....
107	All other rough leather, cost.....	\$144,500	\$71,641	.....	.....	.....	\$77,282
108	Oil, stearin, degrass, tallow, and all other materials used in currying.....	\$276,364	\$463,421	\$23,719	\$102,637	\$11,661	\$745,020
109	Fuel.....	\$159,871	\$235,390	\$13,813	\$62,426	\$4,170	\$522,739
110	Rent of power and heat.....	\$10,845	\$7,153	.....	.....	.....	\$1,146
111	Mill supplies.....	\$23,687	\$27,852	\$4,355	\$5,708	\$323	\$80,484
112	All other materials.....	\$344,325	\$164,276	\$2,114	\$142,704	\$10,365	\$372,617
113	Freight.....	\$52,744	\$168,246	\$36,318	\$10,067	\$100	\$221,833
114	Products:						
	Aggregate value.....	\$21,495,329	\$21,642,945	\$2,662,174	\$6,512,754	\$484,673	\$69,427,852
	Sold in the rough—						
115	Total—						
	Sides.....	798,673	567,019	356,700	150,393	15,250	822,608
116	Value.....	\$873,093	\$836,408	\$1,451,455	\$181,347	\$42,670	\$2,298,589
117	Rough leather—						
	Sides.....	28,029	111,556	356,700	453	8,600	499,893
118	Value.....	\$127,501	\$395,247	\$1,451,455	\$1,728	\$41,340	\$1,709,046
119	Rough grains—						
	Sides.....	100,000	.....	.....	.....	.....	155,724
120	Value.....	\$210,113	.....	.....	.....	.....	\$369,143
121	Rough splits—						
	Sides.....	670,644	455,463	.....	149,940	6,650	166,991
122	Value.....	\$535,479	\$441,161	.....	\$179,619	\$1,330	\$220,400
	Sole leather—						
	Total—						
123	Sides.....	.....	1,195,986	74,883	.....	60	9,476,139
124	Value.....	.....	\$4,027,072	\$398,396	.....	\$300	\$33,553,676
125	Oak—						
	Sides.....	.....	.....	74,883	.....	.....	331,766
126	Value.....	.....	(1)	\$398,396	(1)	.....	\$1,867,731
127	Union—						
	Sides.....	.....	465,207	.....	.....	60	3,472,046
128	Value.....	.....	\$1,634,803	.....	.....	\$300	\$13,856,381
129	Hemlock—						
	Sides.....	.....	730,779	.....	.....	.....	5,672,327
130	Value.....	.....	\$2,392,269	.....	.....	.....	\$17,829,564
131	Upper leather (other than calf, kip, or colt skins)—						
	Total value.....	\$2,151,292	\$4,901,639	\$32,595	\$9,990	\$240	\$655,107
132	Grain, satin, kangaroo, etc. (side leather)—						
	Sides.....	348,698	1,622,303	18,578	2,500	.....	70,461
133	Value.....	\$428,848	\$3,722,279	\$32,595	\$9,700	.....	\$158,721
134	Finished splits—						
	Number.....	70,883	1,166,615	.....	.....	200	64,413
135	Value.....	\$222,001	\$1,108,477	.....	.....	\$240	\$83,472
136	Patent and enameled shoe leather—						
	Sides.....	318,182	8,192	.....	.....	.....	392,000
137	Value.....	\$1,497,893	\$70,883	.....	.....	.....	\$400,000
138	Horsehide—						
	Sides.....	1,600	.....	.....	106	.....	5,718
139	Value.....	\$2,550	.....	.....	\$290	.....	\$12,914
140	Coltskins—						
	Number.....	25,828	50,019	.....	4,000	.....	1,231,260
141	Value.....	\$80,214	\$159,998	.....	\$2,500	.....	\$3,438,036
	Calf and kip skins, tanned and finished—						
	Total—						
142	Number.....	96,992	1,122,832	3,395	503,687	3,430	243,956
143	Value.....	\$172,550	\$1,662,513	\$5,519	\$883,379	\$5,700	\$621,863
144	Flesh finished—						
	Number.....	.....	200	3,045	503,587	2,230	7,843
145	Value.....	.....	\$400	\$4,864	\$883,079	\$3,300	\$21,645
146	Grain finished—						
	Number.....	26,607	1,121,432	350	100	1,200	236,113
147	Value.....	\$64,850	\$1,659,713	\$655	\$300	\$2,400	\$600,218
148	Patent and enameled—						
	Number.....	70,385	1,200	.....	.....	.....	.....
149	Value.....	\$107,700	\$2,400	.....	.....	.....	.....

¹Value of oak sole leather included in "all other products, including by-products, glue stock, etc.," to avoid disclosing individual operations.

LEATHER, TANNED, CURRIED, AND FINISHED.

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DETAILED SUMMARY, BY STATES: 1905—Continued.

Rhode Island.	South Carolina.	Tennessee.	Texas.	Vermont.	Virginia.	Washington.	West Virginia.	Wisconsin.	All other states.	
\$5,081	\$1,236	\$478,374	\$4,914	\$38,612	\$700,714	\$5,753	\$872,833	\$2,287,103	\$2,537	83
30		8,081		4,357	1,519		43,247	184,042	10	84
\$360		\$59,594		\$34,202	\$8,224		\$306,932	\$1,334,775	\$30	85
	39	39,430	290		78,080	144	48,894	120	60	86
	\$236	\$307,630	\$1,230		\$614,272	\$3,816	\$363,672	\$1,612	\$455	87
4			120		75	63		24,541	5	88
\$44			\$1,500		\$551	\$800	\$10	\$221,668	\$57	89
2		4		300	1,056			1,703		90
\$40		\$500		\$3,000	\$8,821			\$17,484		91
		3,920	42	37	7,291		1,151	3,068	80	92
		\$30,822	\$650	\$540	\$49,020		\$12,895	\$27,659	\$800	93
\$28	\$1,000	\$15,457	\$1,150		\$5,900		\$39,285	\$195,186	\$573	94
3					6			125	1	95
\$102					\$216			\$5,753	\$50	96
\$1,253		\$971	\$225	\$100	\$7,373	\$348	\$12,758	\$153,788	\$12	97
\$3,254		\$63,840	\$159	\$470	\$6,337	\$789	\$137,281	\$329,178	\$560	98
\$24,472	\$118	\$18,599	\$692	\$8,000	\$35,115	\$1,481	\$32,148	\$1,144,461	\$621	99
\$17,850							\$1,130	\$465,913	\$60	100
							350	175,527		101
							\$1,130	\$465,913		102
										103
										104
									70	105
\$17,850									\$60	106
\$6,622	\$118	\$18,599	\$692	\$8,000	\$35,115	\$1,481	\$31,018	\$678,548	\$561	107
\$3,026	\$108	\$15,292	\$515	\$200	\$15,600	\$528	\$33,101	\$252,740	\$1,115	109
\$1,157		\$36			\$1,012			\$1,100	\$24	110
\$92	\$5	\$6,180	\$15	\$450	\$4,538	\$10	\$3,214	\$24,620	\$145	111
\$85	\$75	\$14,284	\$250	\$380	\$15,125		\$46,429	\$111,211	\$1,718	112
\$691		\$92,084			\$56,341	\$792	\$85,006	\$86,023	\$122	113
\$346,647	\$10,822	\$3,583,871	\$61,225	\$342,312	\$5,829,812	\$58,061	\$6,061,509	\$25,845,123	\$57,424	114
		169,748	3,334	55,552	345,278		83,889	573,434	7,600	115
		\$656,918	\$10,000	\$182,292	\$1,590,818		\$311,022	\$687,114	\$20,800	116
		169,748		55,552	345,178		83,889	201,642	3,600	117
		\$656,918		\$182,292	\$1,590,656		\$311,022	\$541,584	\$14,400	118
					100					119
					\$162					120
			3,334					371,792	4,000	121
			\$10,000					\$145,530	\$6,400	122
	60	229,568	400		563,907		1,262,538	1,091,531	673	123
	\$250	\$1,219,860	\$1,200		\$2,926,054		\$5,270,545	\$4,231,785	\$3,333	124
	60	229,568	400		563,907		424,824		673	125
	\$250	\$1,219,860	\$1,200		\$2,926,054		\$2,382,515		\$3,333	126
							349,348	53,350		127
							\$1,413,872	\$257,769		128
							488,366	1,038,181		129
							\$1,474,158	\$3,974,016		130
	\$350	\$139,552			\$2,879		\$1,198	\$5,908,992		131
	250	35,795			970		512	1,923,636		132
	\$350	\$110,045			\$2,695		\$1,180	\$4,751,770		133
		25,336						1,406,386		134
		\$29,507						\$918,054		135
								3,693		136
								\$12,017		137
					81		12	114,398		138
					\$184		\$18	\$227,151		139
					20		75	5,085		140
					\$30		\$625	\$9,454		141
2,467		1,014		60	1,494	1,872	770	3,564,723	530	142
\$8,600		\$2,225		\$75	\$3,439	\$7,488	\$1,795	\$6,940,331	\$1,789	143
		774		60	1,394		720	606,719	300	144
		\$1,685		\$75	\$3,239		\$1,720	\$1,273,234	\$1,275	145
2,467		240			100	1,872	80	2,936,130	230	146
\$8,600		\$540			\$200	\$7,488	\$75	\$5,621,132	\$514	147
								21,874		148
								\$45,965		149

TABLE 12.—LEATHER, TANNED, CURRIED, AND FINISHED—

		New Jersey.	New York.	North Caro- lina.	Ohio.	Oregon.	Pennsyl- vania.
150	Products—Continued.						
151	Goatskins, tanned and finished—						
	Total—						
	Number.....	3,481,123	1,033,155	1,166	3,500	80	22,909,407
	Value.....	\$3,161,780	\$922,035	\$856	\$2,500	\$200	\$19,156,181
152	Black—						
153	Number.....	3,466,523	873,155	654	3,500		20,923,993
	Value.....	\$3,141,830	\$796,516	\$647	\$2,500		\$17,133,227
154	Colored—						
155	Number.....	14,600	160,000	512		80	1,985,414
	Value.....	\$19,950	\$125,519	\$209		\$200	\$2,022,954
156	Sheepskins, tanned and finished—						
157	Number.....	1,228,500	4,768,772	1,295	24,360	200	1,090,180
	Value.....	\$743,802	\$3,049,763	\$430	\$10,224	\$100	\$567,879
158	Belting leather—						
159	Sides.....	28,520	5,000	73,000	31,642		880
	Value.....	\$123,230	\$30,000	\$364,815	\$211,342		\$3,488
160	Harness leather—						
161	Sides.....	75,242	184,182	50,699	309,434	47,080	518,178
	Value.....	\$405,219	\$995,947	\$188,139	\$1,860,772	\$235,215	\$2,989,450
162	Carriage leather—						
163	Number of hides.....	342,897	18,606		167,702	7,000	39,505
164	Value.....	\$3,458,402	\$90,413		\$1,366,913	\$35,000	\$249,136
165	Trunk, bag, and pocketbook leather.....	\$1,669,360	\$109,834		\$78,200		\$751,772
166	Bookbinders' leather.....	\$1,235,594	\$553,816		\$125,633		
	Leather for manufacture of gloves.....	\$3,150	\$1,218,868			\$300	\$12,701
167	Furniture leather—						
168	Number of hides.....	141,655	13,031		37,815		7,913
169	Value.....	\$1,684,893	\$132,612		\$431,937		\$58,142
170	All other leather, including offal leather.....	\$4,290,645	\$574,290	\$183,321	\$282,584	\$158,818	\$1,936,054
171	All other products, including by-products, glue stock, etc.....	\$190,576	\$1,320,483	\$21,108	\$1,065,397	\$6,030	\$1,166,686
	Amount charged for tanning, currying, or finishing for others.....	\$1,251,529	\$1,057,254	\$15,540	\$30	\$100	\$1,969,092
	Custom work, stock tanned or finished for others:						
	For tanners, curriers, and finishers—						
172	Hides tanned—						
173	Number.....	324,161	5,000	5,327		100	179,337
	Estimated value.....	\$1,582,033	\$43,000	\$45,718		\$200	\$1,365,313
174	Skins tanned—						
175	Number.....	365,404	194,200				16,185
	Estimated value.....	\$327,177	\$124,650				\$72,319
176	Sides curried—						
177	Number.....	183,982					
	Estimated value.....	\$777,989					
178	Splits curried—						
179	Number.....	252,582					
	Estimated value.....	\$277,924					
180	Skins curried or finished—						
181	Number.....	84,491	502,005				1,894,155
	Estimated value.....	\$100,236	\$345,251				\$2,050,806
	For others, not tanners, curriers, or finishers—						
182	Hides tanned—						
183	Number.....	1,000	25,652	136	4		29,460
	Estimated value.....	\$6,500	\$40,836	\$584	\$35		\$195,627
184	Skins tanned—						
185	Number.....		4,130,992	125	20		4,460,002
	Estimated value.....		\$2,438,050	\$550	\$50		\$4,007,596
186	Sides curried—						
187	Number.....						12
	Estimated value.....						\$24
188	Splits curried—						
189	Number.....	1,000	3,765				
	Estimated value.....	\$2,500	\$5,647				
190	Skins curried or finished—						
191	Number.....	251,481	4,346,862				574,957
	Estimated value.....	\$922,494	\$3,155,915				\$435,080
192	Power:						
193	Number of establishments reporting.....	67	112	17	33	10	185
	Total horsepower.....	8,596	13,822	1,521	2,953	314	34,938
	Owned—						
	Engines—						
194	Steam—						
195	Number.....	83	161	29	47	10	424
	Horsepower.....	7,129	11,111	1,488	2,682	309	27,083
196	Gas or gasoline—						
197	Number.....		18		3		43
	Horsepower.....		946		88		3,794
198	Water wheels—						
199	Number.....		15	2		1	10
	Horsepower.....		595	33		5	111
200	Water motors—						
201	Number.....						
	Horsepower.....						
202	Electric motors—						
203	Number.....	85	52		14		137
204	Horsepower.....	1,101	591		183		3,863
	Other power, horsepower.....						40
	Rented—						
205	Electric motors—						
206	Number.....	35	34				2
207	Horsepower.....	335	477				12
208	Other kind, horsepower.....	31	102				35
	Furnished to other establishments, horsepower.....	28	108				

¹Includes the value of oak sole leather, to avoid disclosing individual operations.

LEATHER, TANNED, CURRIED, AND FINISHED.

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DETAILED SUMMARY, BY STATES: 1905—Continued.

Rhode Island.	South Carolina.	Tennessee.	Texas.	Vermont.	Virginia.	Washington.	West Virginia.	Wisconsin.	All other states.	
		943						2	340	150
		\$509						\$7	\$263	151
		881						■	340	152
		\$447						\$7	\$263	153
		62								154
		\$62								155
230,400		6,094		1,000	55,951	2,400	830	146,755	7,250	156
\$140,200		\$3,183		\$1,200	\$28,108	\$1,500	\$458	\$116,406	\$3,650	157
3,400		174,260			103,870		16,000		112	158
\$30,000		\$1,036,276			\$459,496		\$79,920		\$620	159
	4,250	49,111	8,900	25,337	35,235	7,800	57,011	1,504,944	2,927	160
	\$10,100	\$124,070	\$33,750	\$150,264	\$130,563	\$34,750	\$322,249	\$6,097,651	\$10,935	161
										162
\$2,500								\$17,560	\$175	163
\$368										164
					\$25			\$870,321	\$1,300	165
										166
										167
\$144,249	\$100	\$54,024	\$15,900	\$1,425	\$588,054	\$14,253	\$17,112	\$412,867	\$6,100	168
\$4,000	\$22	\$40,303	\$375	\$7,056	\$46,849	\$70	\$56,250	\$537,010	\$5,440	169
\$16,730		\$306,951			\$53,497		\$335	\$15,625	\$3,019	170
										171
		104,500			17,761			6,000		172
		\$748,050			\$190,043			\$24,000		173
										174
								24,000		175
								\$48,000		176
										177
										178
										179
		150								180
		\$75								181
										182
16,000		155			5,116	200	37	1,410	275	183
\$91,509		\$595			\$32,147	\$1,000	\$250	\$7,875	\$2,350	184
					96		85	7,500	1,700	185
					\$76		\$610	\$16,000	\$2,500	186
					114		24		112	187
					\$235		\$72		\$269	188
										189
							10	200		190
							\$20	\$700		191
■	2	21	2	3	29	3	25	33	6	192
1008	41	1,831	35	180	2,523	70	3,023	13,974	47	193
										194
3	1	37	2	4	50	3	51	107	3	195
275	35	1,710	35	135	2,305	66	2,967	9,196	25	196
					2		1	1	1	197
					10		6	50	6	198
					4	1		4		199
	1	2		2	84	4		555		200
	0	11		45						201
										202
		■			1		1	147		203
		100			15		50	4,158		204
										205
13								1	2	206
33								15	16	207
		10			109					208

LEATHER GLOVES AND MITTENS

LEATHER GLOVES AND MITTENS.

The manufacture of leather gloves was first reported as an industry at the census of 1810. In 1850 the classification was "gloves;" in 1860, "gloves and mittens." Until the census of 1905 this classification prevailed, although in 1900, for the purposes of the special report, a separation was made of the returns for leather gloves and mittens. Under the general classification was included every variety of gloves and mittens manufactured, whether of leather or other material, except fur and knit gloves and mittens. It is impossible,

therefore, to present exact comparative statistics for establishments engaged exclusively in the manufacture of leather gloves and mittens for any census prior to that of 1900. At each census, however, the manufacture of gloves and mittens of materials other than leather has formed but a small part of the glove and mitten industry. The statistics as reported at each census from 1850 to 1905, inclusive, are summarized in Table 1.

TABLE 1.—COMPARATIVE SUMMARY, WITH PER CENT OF INCREASE: 1850 TO 1905.

	CENSUS.							PER CENT OF INCREASE.					
	1905 ¹	1900 ²	1890 ³	1880 ³	1870 ³	1860 ³	1850 ³	1900 to 1905	1890 to 1900	1880 to 1890	1870 to 1880	1860 to 1870	1850 to 1860
Number of establishments.....	339	381	324	300	221	126	110	11.0	17.6	8.0	35.7	75.4	14.5
Capital.....	\$10,705,599	\$9,004,427	\$5,977,820	\$3,379,648	\$2,340,550	\$594,825	\$181,200	18.9	50.6	76.9	44.4	293.5	228.3
Salaries officials, clerks, etc., number..	640	637	482	(⁶)	(⁶)	(⁶)	(⁶)	0.5	32.2	-----	-----	-----	-----
Salaries.....	\$584,573	\$544,170	\$438,664	(⁶)	(⁶)	(⁶)	(⁶)	7.4	24.1	-----	-----	-----	-----
Wage-earners, average number.....	10,645	14,180	8,187	7,697	4,058	1,429	1,938	24.9	73.2	6.4	89.7	184.0	26.3
Total wages.....	\$3,840,253	\$4,151,126	\$2,670,344	\$1,655,695	\$980,549	\$330,419	\$233,496	7.5	55.5	61.3	68.9	196.8	41.5
Men 16 years and over.....	4,174	4,364	2,998	2,102	1,127	453	329	4.4	45.6	42.6	86.5	148.8	37.7
Wages.....	\$2,005,890	\$2,014,134	\$1,506,385	(⁶)	(⁶)	(⁶)	(⁶)	0.4	33.7	-----	-----	-----	-----
Women 16 years and over.....	6,245	9,542	5,091	5,249	2,894	976	1,609	34.6	87.4	3.0	81.4	196.5	39.3
Wages.....	\$1,795,988	\$2,101,044	\$1,150,943	(⁶)	(⁶)	(⁶)	(⁶)	14.5	82.5	-----	-----	-----	-----
Children under 16 years.....	226	274	98	346	37	(⁶)	(⁶)	17.5	179.6	71.7	835.1	-----	-----
Wages.....	\$38,375	\$35,948	\$13,016	(⁶)	(⁶)	(⁶)	(⁶)	6.8	176.2	-----	-----	-----	-----
Miscellaneous expenses.....	\$1,507,693	\$562,870	\$426,937	(⁷)	(⁷)	(⁷)	(⁷)	167.9	31.8	-----	-----	-----	-----
Cost of materials used.....	\$10,000,889	\$9,382,102	\$5,021,144	\$4,351,469	\$1,884,146	\$537,589	\$322,837	6.6	86.9	15.4	131.0	250.5	66.5
Value of products, including custom work and repairing.....	\$17,740,385	\$16,721,234	\$10,103,821	\$7,379,605	\$3,998,521	\$1,176,795	\$708,184	6.1	65.5	36.9	84.6	239.8	66.2

¹ Exclusive of the statistics of 9 establishments engaged primarily in the manufacture of other products. These establishments made leather gloves and mittens to the value of \$166,164.

² The figures reported for 1900 represent leather gloves and mittens only, and therefore do not agree with the totals for "gloves and mittens" in the general Report on Manufactures, Parts I and II.

³ The statistics for censuses prior to 1900 are for gloves and mittens, whether of leather or other material, except fur and knit gloves and mittens.

⁴ Decrease.

⁵ Includes proprietors and firm members, with their salaries; number only reported in 1900 and 1905, but not included in this table.

⁶ Not reported separately.

⁷ Not reported.

Table 1 shows that the industry has made marked progress at each succeeding census since 1850, except at that of 1905, when the value of products as compared with that reported in 1900 increased only 6.1 per cent. The decrease from 1900 to 1905 of 42, or 11 per cent, in the number of establishments is due to the consolidation of some of the smaller plants and to the discontinuance of others. The diminution during the same period in the average number of wage-earners and in the total wages may be attributed, in part, to a protracted contest between capital and labor in Fulton county, N. Y., and, in part, to an increased tendency to have work done by contract. As shown in Table 3, contract work cost \$393,723 in 1905, as compared with \$93,795 in 1900. The labor troubles in Fulton county, N. Y., where about half the value of

products for the industry in the United States is produced, probably account also for the fact that the value of products did not show such a large rate of increase at the census of 1905 as at prior censuses.

To obtain the total value of leather gloves and mittens in 1905, the value of products shown in the table should be increased by \$166,164, the value of leather gloves and mittens manufactured by establishments engaged primarily in some other industry. This value is not included in any of the tables of this report. In 1900 these minor products of other industries were valued at \$217,157.

Table 2 is a comparison of the various items of miscellaneous expenses for 1900 and 1905, with the percentage each item is of the total, and the percentage of increase during the period.

TABLE 2.—*Miscellaneous expenses, with per cent each item is of total, and per cent of increase: 1905 and 1900.*

	1905		1900		Per cent of increase.
	Amount.	Per cent of total.	Amount.	Per cent of total.	
Total.....	\$1,507,693	100.0	\$562,870	100.0	167.9
Rent of works.....	84,021	5.6	85,888	15.2	12.2
Taxes.....	22,330	1.5	23,466	4.2	14.8
Rent of offices, interest, insurance, repairs, advertising, and other sundries	1,007,619	66.8	359,721	63.9	180.1
Contract work.....	393,723	26.1	93,795	16.7	319.8

¹ Decrease.

The large increase in the total is due in part to the increase of 319.8 per cent in the amount paid for "contract work," which consists principally of amounts paid to home workers. The amounts paid for rent of works and for taxes decreased; but expenditures for rent of offices, insurance, advertising, etc., constitute the largest part of the miscellaneous expenses, and increased 180.1 per cent.

Table 3 is a comparative statement of materials used, by kind and cost, for 1900 and 1905.

The slight increase at the census of 1905 compared with that of 1900 in the total cost of materials used—6.6 per cent—is consistent with the advance of 6.1 per cent in the total value of products.

TABLE 3.—*Cost of materials used, with per cent each item is of total, and per cent of increase: 1905 and 1900.*

	1905		1900		Per cent of increase.
	Cost.	Per cent of total.	Cost.	Per cent of total.	
Total.....	\$10,000,889	100.0	\$9,382,102	100.0	6.6
Hides and skins.....	8,109,523	81.1	7,356,433	78.4	10.2
Fuel.....	44,293	0.4	42,230	0.5	4.9
Rent of power and heat.....	27,018	0.3	19,919	0.2	35.6
Mill supplies.....	7,531	0.1	12,619	0.1	140.3
All other materials.....	1,761,225	17.6	1,904,778	20.3	17.5
Freight.....	51,299	0.5	46,123	0.5	11.2

¹ Decrease.

Hides and skins were the chief materials used. The cost of these constituted 81.1 per cent of the cost of all materials in 1905 and 78.4 per cent in 1900. The actual increase in their cost between 1900 and 1905 was \$753,090, or 10.2 per cent. "All other materials" decreased \$143,553, or 7.5 per cent. The increase in the cost of rented power and heat—\$7,099, or 35.6 per cent—was caused by a large increase in the use of rented electric power, the amount of which was double that employed in 1900.

In Table 4 is presented the kind, quantity, and cost of hides and skins reported in 1900 and 1905. The table also shows the percentage which the cost of each item formed of the total cost at each census and the percentage of increase.

TABLE 4.—*MATERIALS USED—HIDES AND SKINS, BY KIND, QUANTITY, AND COST: 1905 AND 1900.*

	1905			1900			Per cent of in- crease in cost.
	Quantity (dozens).	Cost.		Quantity (dozens).	Cost.		
		Total.	Per cent of total.		Total.	Per cent of total.	
Total.....	999,235	\$8,109,523	100.0	826,416	\$7,356,433	100.0	10.2
Deerskins.....	66,280	888,210	11.0	89,596	1,146,808	15.6	122.5
Sheepskins, imported.....	88,881	845,214	10.4	111,804	1,119,035	15.2	124.5
Sheepskins, domestic.....	342,764	1,648,857	20.3	422,481	2,256,511	30.7	126.9
Kid and suede, imported.....	110,282	1,117,817	13.8	70,824	740,170	10.1	51.0
Kid and suede, domestic.....	140,502	938,091	11.6	97,245	708,800	9.6	32.3
Hogskins, imported.....	35,013	25,292	0.3	(2)			
Hogskins, domestic.....	170,633	105,481	1.3	(2)			
Horse and cow hides.....	44,880	2,140,836	26.4	30,180	1,352,148	18.4	58.3
All other varieties.....	(3)	399,725	4.9	4,286	32,961	0.4	

¹ Decrease.² Included in "all other varieties."³ Not reported.

Horse and cow hides were reported by sides on the schedule for 1905, and to make the figures comparable with those for 1900 they have been reduced to dozens by computing 24 sides to be the equivalent of a dozen whole hides.

The decrease in total quantity and total cost of deerskins and sheepskins, both domestic and imported, may be attributed to the increasing use of horse and cow hides and of hogskins for making gloves. According to a growing belief, gloves made from these varieties of leather are not only cheaper but possess better wearing qualities.

Between 1900 and 1905 the percentage of the total

cost of materials expended for deerskins fell from 15.6 to 11, that for imported sheepskins from 15.2 to 10.4, and that for domestic sheepskins from 30.7 to 20.3; whereas during the same period the percentage of the total cost expended for horse and cow hides rose from 18.4 to 26.4. As shown in Table 10, New York ranked first in quantity of deerskins, sheepskins, kid and suede, and hogskins used, and second in horse and cow hides. Wisconsin was first in horse and cow hides and second in deer and sheep skins combined. Illinois ranked second in hogskins and third in deer and sheep skins combined and in horse and cow hides.

Table 5 shows the products, by kind, quantity, and value, for 1900 and 1905.

TABLE 5.—*Products, by kind, quantity, and value: 1905 and 1900.*

	1905	1900
Products, aggregate value.....	\$17,740,385	\$16,721,234
Gloves, mittens, and gauntlets:		
Total dozen pairs.....	3,370,146	2,895,661
Total value.....	\$17,122,772	\$16,039,168
Men's—		
Lined—		
Dozen pairs.....	1,317,083	952,820
Value.....	\$6,333,081	\$4,959,902
Unlined—		
Dozen pairs.....	1,598,332	1,314,507
Value.....	\$8,182,689	\$7,458,356
Women's—		
Lined—		
Dozen pairs.....	79,688	78,783
Value.....	\$498,325	\$538,362
Unlined—		
Dozen pairs.....	174,102	221,039
Value.....	\$1,420,807	\$1,772,746
Gauntlets—		
Dozen pairs.....	(¹)	24,004
Value.....	(¹)	\$150,652
Children's—		
Lined—		
Dozen pairs.....	161,673	188,366
Value.....	\$532,518	\$709,554
Unlined—		
Dozen pairs.....	39,268	116,142
Value.....	\$155,352	\$449,596
All other products, including custom work and repairing.....	\$617,613	\$682,066

¹ Not reported separately.

During the year covered by the census of 1905, as shown in Table 5, there were made in the United States in establishments engaged primarily in this industry 3,370,146 dozen pairs of leather gloves and mittens of all varieties, valued at \$17,122,772. The total value of products of establishments making a specialty of manufacturing leather gloves and mittens was \$17,740,385. If to this amount is added \$166,164, the value of leather gloves and mittens manufactured in establishments engaged in industries in which the making of these articles was merely incidental, the total value of products for the census year 1905 would be \$17,906,549. The corresponding total for 1900 would be \$16,938,391.

As shown in the preceding table, the value of the products increased from \$16,721,234 in 1900 to \$17,740,385 in 1905, or 6.1 per cent. The total num-

ber of dozen pairs of gloves, mittens, and gauntlets increased from 2,895,661 to 3,370,146, or 16.4 per cent, although their value increased from \$16,039,168 to \$17,122,772, or only 6.8 per cent.

The disproportionate increase in quantity and value is probably accounted for by the larger use of horse and cow hides, materials which are cheaper and more durable than deerskin and sheepskin for rough gloves.

Table 6 shows the quantity of dress and working gloves reported in 1905.

TABLE 6.—*Dress and working gloves, mittens, and gauntlets, by quantity, with per cent each kind is of total: 1905.*

	AGGREGATE.		MEN'S.		WOMEN'S.		CHILDREN'S.	
	Dozen pairs.	Per cent of total.	Dozen pairs.	Per cent of total.	Dozen pairs.	Per cent of total.	Dozen pairs.	Per cent of total.
Aggregate.....	3,370,146	100.0	2,915,415	100.0	253,790	100.0	200,941	100.0
Dress:								
Total.....	977,594	29.0	715,949	24.6	183,333	72.2	78,312	39.0
Lined.....	431,897	.....	314,150	.....	49,364	.....	68,385	.....
Unlined.....	545,697	.....	401,799	.....	133,969	.....	9,929	.....
Working:								
Total.....	2,392,552	71.0	2,199,466	75.4	70,457	27.8	122,629	61.0
Lined.....	1,126,547	.....	1,002,933	.....	30,324	.....	93,290	.....
Unlined.....	1,266,005	.....	1,196,533	.....	40,133	.....	29,339	.....

As shown in the foregoing table, men's dress and working gloves and mittens were the leading products, comprising 86.5 per cent of the total output of gloves and mittens. Working gloves and mittens for men constituted 75.4 per cent of the total men's gloves and mittens made and 65.3 per cent of all gloves and mittens. Women's and children's gloves and mittens were not extensively made, owing to scarcity of suitable skins and the cost of labor. For the former class 72.2 per cent of those manufactured were for dress purposes, while for the latter class 61 per cent were working gloves and mittens. No comparison of these figures can be made with similar figures for 1900, as these details were not reported at that census.

Table 7 is a comparative summary, by states, for 1900 and 1905.

TABLE 7.—COMPARATIVE SUMMARY, BY STATES: 1905 AND 1900.

STATE.	Cen- sus.	Num- ber of estab- lish- ments.	Capital.	SALARIED OFFI- CIALS, CLERKS, ETC.		WAGE-EARNERS AND WAGES.								Miscella- neous expenses.	Cost of materials used.	Value of products.
				Num- ber.	Salaries.	Total.		Men 16 years and over.		Women 16 years and over.		Children under 16 years.				
						Average num- ber.	Wages.	Average num- ber.	Wages.	Average num- ber.	Wages.	Average num- ber.	Wages.			
United States..	1905 1900	339 381	\$10,705,599 9,004,427	640 637	\$584,573 544,170	10,645 14,180	\$3,840,253 4,151,126	4,174 4,364	\$2,005,890 2,014,134	6,245 9,542	\$1,795,983 2,101,044	226 274	\$38,375 35,948	\$1,507,693 562,870	\$10,000,889 9,382,102	\$17,740,385 16,721,234
California.....	1905 1900	22 23	604,070 432,996	51 65	46,878 52,962	516 622	222,688 224,953	165 176	110,565 94,924	337 422	109,029 126,729	14 24	3,094 3,300	68,100 68,189	458,573 436,512	910,596 920,624
Illinois.....	1905 1900	24 24	554,789 781,719	65 108	63,442 93,782	1,134 1,752	424,934 653,237	382 741	186,702 342,478	708 920	230,056 298,930	44 91	8,176 11,829	181,583 69,432	852,347 1,224,339	1,690,804 2,454,252
Indiana.....	1905 1900	5 3	177,665 148,994	21 7	23,215 10,300	321 226	86,621 49,627	90 40	35,997 18,047	218 163	48,474 28,172	13 23	2,150 3,408	20,789 12,456	342,985 173,195	514,188 264,271
Iowa.....	1905 1900	8 6	479,320 266,708	47 42	41,209 30,948	263 152	101,339 53,348	129 47	59,454 28,110	134 98	41,885 24,788	..... 7	..... 450	133,874 14,611	358,244 118,963	698,400 273,000
Maryland ¹	1900	3	50,541	8	6,175	89	14,276	23	5,300	63	8,751	3	225	3,936	54,098	86,675
Massachusetts....	1905 1900	5 8	266,600 109,150	7 7	5,700 3,960	165 194	70,848 85,410	53 61	31,634 42,913	112 127	39,214 41,597	..... 6	..... 900	10,119 6,938	135,299 123,135	264,811 286,210
Michigan.....	1905 1900	8 5	84,620 29,241	9 3	7,792 700	106 38	35,359 12,206	38 9	18,170 4,148	53 27	14,305 7,746	15 2	2,884 312	22,202 1,762	113,379 27,980	191,693 54,850
Minnesota.....	1905 1900	7 8	69,056 13,437	9 2	6,431 550	65 23	21,646 4,497	16 5	9,593 1,470	48 16	11,883 2,922	1 2	170 105	4,740 2,130	52,377 11,677	98,133 24,328
New Hampshire...	1905 1900	3 6	304,134 351,492	8 7	9,248 9,150	208 243	74,898 82,080	148 140	58,317 55,329	60 89	16,581 24,959	..... 14	..... 1,792	18,649 10,728	173,368 171,302	297,157 296,557
New Jersey.....	1905 1900	5 25	111,106 65,894	18	10,443	211 179	77,796 67,002	57 55	35,342 35,873	149 121	41,672 30,129	5 3	782 1,000	8,666 1,971	115,296 79,975	223,726 171,065
New York.....	1905 1900	194 243	6,348,407 6,219,647	296 328	262,873 294,574	5,613 9,907	2,131,053 2,723,702	2,485 2,843	1,204,255 1,299,595	3,056 7,001	915,722 1,415,156	72 63	11,076 8,951	861,142 341,486	5,696,256 6,328,036	9,946,443 10,854,221
Ohio.....	1905 1900	8 25	93,539 113,791	9 3	5,244 3,600	93 69	28,607 22,030	32 28	12,100 10,080	61 41	16,507 11,950	..... .....	..... .....	8,080 2,332	65,319 66,590	117,654 111,050
Oregon ²	1905	4	24,136	1	300	16	6,264	8	4,114	8	2,150	.....	.....	5,411	19,077	39,530
Pennsylvania.....	1905 1900	4 4	66,239 28,950	3 3	1,768 1,800	45 43	10,794 9,759	14 16	4,575 4,800	28 27	5,969 4,959	3	250	949 883	33,145 20,737	48,755 42,236
Virginia.....	1905 1900	3 3	135,100 136,300	10 23	3,592 13,700	273 255	39,144 43,900	28 40	7,620 14,700	245 188	31,524 26,700	..... 27	..... 2,500	9,263 11,600	57,150 174,190	127,816 265,925
Washington.....	1905 1900	7 3	36,191 8,250	1 3	900 720	53 15	22,655 6,300	19 8	11,000 4,000	34 7	11,655 2,300	..... .....	..... .....	9,500 629	55,095 9,735	108,150 24,685
Wisconsin.....	1905 1900	21 19	1,206,584 219,789	72 24	81,663 17,939	1,396 319	437,327 78,473	449 112	191,450 41,997	897 199	236,984 35,500	50 8	8,893 976	130,842 9,474	1,338,968 319,167	2,208,705 507,495
All other states....	1905 1900	11 13	144,043 27,528	13 4	13,875 3,310	167 54	48,280 20,326	61 20	25,002 10,370	97 33	22,378 9,756	9 1	900 200	13,715 4,313	134,011 42,471	253,824 83,790

¹ Included in "all other states" in 1905.² Includes 1 establishment, the schedule for which was received too late to be included in the general report as presented in Manufactures, Parts I and II.³ Included in "all other states" in 1900.⁴ Includes establishments distributed as follows: Colorado, 1; Connecticut, 1; Kansas, 1; Kentucky, 1; Maine, 1; Maryland, 1; Missouri, 2; Nebraska, 1; West Virginia, 1; Wyoming, 1.⁵ Includes establishments distributed as follows: Colorado, 1; Connecticut, 1; Maine, 1; Missouri, 2; Montana, 1; Nebraska, 1; Oklahoma, 1; Oregon, 2; Rhode Island, 1; Utah, 1; West Virginia, 1.

The leading states in this industry in 1905, according to their value of products, were New York, Wisconsin, Illinois, and California. In 1900 the same states were the most important, although their rank was not the same. Illinois, by decreasing \$763,448, or 31.1 per cent, in its value of products between 1900 and 1905, gave place to Wisconsin, which showed the remarkable increase during the census period of \$1,701,210, or over 300 per cent. New York showed a decrease of \$907,778, or 8.4 per cent, but retained first place, reporting 56.1 per cent of the total value of products for the industry. That the industry is making rapid progress in the West (for purposes of comparison classing all states west of Ohio as belonging to this

group) is evident from the fact that for the 8 Western states, for which comparative totals are shown in Table 7, the value of products increased \$1,897,164, or 41.9 per cent.

At the census of 1850 New York led, as in 1905, in number of establishments, having 82 of the 110 reported. Pennsylvania was second with 8; Maryland and Ohio followed, with 5 each; New Hampshire with 3; Illinois and Virginia, with 2 each; while Michigan, Missouri, and Wisconsin had 1 each. In 1850 the glove and mitten industry was carried on in 10 states only; in 1905 reports were secured from 26 states.

The manufacture of leather gloves and mittens was first undertaken in the United States in Fulton county,

N. Y., and the locality has maintained its preeminence. The reasons for the localization of the industry and the history and methods of the manufacture were discussed at the census of 1900.¹

¹Twelfth Census, Manufactures, Part III, pages 793 ff.

Table 8 is a comparative summary showing the statistics for Gloversville and Johnstown, N. Y., in connection with those of Fulton county for 1900 and 1905, with percentages that each total is of the corresponding total for the United States.

TABLE 8.—COMPARATIVE SUMMARY—FULTON COUNTY, GLOVERSVILLE, AND JOHNSTOWN, N. Y.: 1905 AND 1900.

	FULTON COUNTY.				GLOVERSVILLE.				JOHNSTOWN.			
	1905		1900		1905		1900		1905		1900	
	Total.	Per cent of total for United States.	Total.	Per cent of total for United States.	Total.	Per cent of total for United States.	Total.	Per cent of total for United States.	Total.	Per cent of total for United States.	Total.	Per cent of total for United States.
Number of establishments.....	145	42.8	166	43.6	86	25.4	101	26.5	45	14.2	49	12.9
Capital.....	\$5,656,580	52.8	\$5,517,850	61.3	\$3,393,634	31.7	\$3,660,383	40.7	\$1,929,107	18.0	\$1,688,604	18.7
Salaries, officials, clerks, etc., number.....	200	41.6	250	39.2	161	25.2	171	26.8	89	13.9	72	11.3
Salaries.....	\$242,918	41.6	\$244,522	44.9	\$157,059	26.9	\$177,551	32.6	\$72,531	12.4	\$64,114	11.8
Wage-earners, average number.....	4,787	45.0	7,931	55.9	2,997	28.2	5,183	36.6	1,478	13.9	2,316	16.3
Total wages.....	\$1,804,099	47.0	\$2,381,160	57.4	\$1,161,370	30.2	\$1,695,035	40.8	\$533,287	13.9	\$580,146	14.0
Men 16 years and over.....	2,121	50.8	2,295	52.6	1,317	31.6	1,497	34.3	663	15.9	670	15.4
Wages.....	\$1,030,067	51.4	\$1,158,193	57.5	\$669,070	33.4	\$822,201	40.8	\$301,183	15.0	\$287,875	14.3
Women 16 years and over.....	2,598	41.6	5,601	58.7	1,635	26.2	3,674	38.5	794	12.7	1,625	17.0
Wages.....	\$763,681	42.5	\$1,214,993	57.8	\$485,563	27.0	\$868,422	41.3	\$228,816	12.7	\$288,997	13.8
Children under 16 years.....	68	30.1	35	12.8	45	19.9	12	4.4	21	9.3	21	7.7
Wages.....	\$10,351	27.0	\$7,974	22.2	\$6,737	17.6	\$4,412	12.3	\$3,288	8.6	\$3,274	9.1
Miscellaneous expenses.....	\$776,336	51.5	\$237,446	42.2	\$492,547	32.7	\$153,275	27.2	\$222,616	14.8	\$60,172	10.7
Cost of materials used.....	\$4,898,609	49.0	\$5,689,613	60.6	\$3,033,071	30.3	\$3,900,897	41.6	\$1,453,106	14.5	\$1,506,193	16.1
Products:												
Total value.....	\$5,562,593	48.3	\$9,548,603	57.1	\$5,302,196	29.9	\$6,487,227	38.8	\$2,581,274	14.6	\$2,576,048	15.4
Gloves and mittens—												
Dozen pairs.....	1,312,413	38.9	1,484,579	51.3	705,280	20.9	925,440	32.0	414,758	12.3	398,657	13.8
Value.....	\$8,438,390	49.3	\$9,379,560	58.5	\$5,241,438	30.6	\$6,350,809	39.6	\$2,553,379	14.9	\$2,554,717	15.9
All other products, including custom work and repairing.....	\$124,203	20.1	\$169,043	24.8	\$60,758	9.8	\$136,418	20.0	\$27,895	4.5	\$21,331	3.1

In 1905 for Fulton county there were reported 145, or 42.8 per cent, of all leather glove and mitten establishments in the United States; in 1900, 166, or 43.6 per cent. The decrease of 21 is attributable to consolidation of interests and abandonment of smaller plants. The decrease of \$986,010 in the value of products in 1905 compared with 1900 was due principally to the protracted controversy between capital and labor, which, as estimated by a leading authority in the county, caused a decrease of about one-quarter of the year's output.

In 1905 for the two cities there were reported 134, or 92.4 per cent of all establishments in Fulton county, and 39.6 per cent of all in the United States. The capital invested amounted to \$5,322,741, or 49.7 per cent of that for the United States, while the value of products amounted to \$7,883,470, or 44.5 per cent of the total.

Table 9 presents the value of gloves, of kid or other leather, imported from 1900 to 1905.

TABLE 9.—Value of gloves, of kid or other leather, imported: 1900 to 1905.¹

YEAR.	Value.	YEAR.	Value.
1905.....	\$4,727,489	1902.....	\$5,366,381
1904.....	5,095,337	1901.....	5,574,259
1903.....	5,029,278	1900.....	6,107,765

¹Bureau of Statistics, Department of Commerce and Labor, Commerce and Navigation of the United States.

It is worthy of note that there was a decrease of \$1,380,276, or 22.6 per cent, in the value of these imports between 1900 and 1905, while the decrease between 1904 and 1905 was \$367,848, or 7.2 per cent. These continued decreases were probably caused in part by an increased use of knit gloves and cloth gloves, and in fact the imports of gloves other than kid or other leather increased between 1900 and 1905 from \$665,259 to \$1,326,102, or 99.3 per cent. But the decrease in imports of leather gloves may also be attributed to the increased importation of skins in "salt pickle"—materials for remanufacture—which are admitted free of duty. The dressing of these skins for home factories is increasing rapidly, especially in New York. It is significant, too, that the imports were almost exclusively of the finer grades of gloves, the greater proportion probably being ladies' gloves. Glove manufacturers in the United States have not, to any great extent, attempted the making of these gloves, primarily because of the scarcity of fine skins. The imports from France and Germany for 1905 aggregated \$3,553,951, or 75.2 per cent of all importations of gloves of kid or other leather into the United States, the value being about equally divided between the two countries.

The detailed statistics for the industry, by states, for 1905 are presented in Table 10.

TABLE 10.—LEATHER GLOVES AND MITTENS—

	United States.	California.	Illinois.	Indiana.	Iowa.	Massachu- setts.	Michigan.
1 Number of establishments.....	339	22	24	5	8	5	8
2 Capital:							
3 Total.....	\$10,705,599	\$604,070	\$554,789	\$177,665	\$479,320	\$266,600	\$84,620
4 Land.....	\$245,233	\$24,749	\$22,400	\$14,203	\$19,200	\$800	\$3,246
5 Buildings.....	\$741,891	\$38,670	\$107,000	\$42,205	\$71,460	\$1,500	\$13,594
6 Machinery, tools, and implements.....	\$869,806	\$69,108	\$76,475	\$32,645	\$43,167	\$20,050	\$25,616
7 Cash and sundries.....	\$8,848,669	\$471,543	\$348,914	\$88,612	\$345,493	\$244,250	\$42,164
8 Proprietors and firm members.....	427	21	30	5	10	5	6
9 Salaried officials, clerks, etc.:							
10 Total number.....	640	51	65	21	47	7	9
11 Total salaries.....	\$584,573	\$46,878	\$63,442	\$23,215	\$41,209	\$5,700	\$7,792
12 Officers of corporations—							
13 Number.....	51	2	9	2	5	1	3
14 Salaries.....	\$115,350	\$4,100	\$21,720	\$4,500	\$6,350	\$2,500	\$3,500
15 General superintendents, managers, clerks, etc.—							
16 Total number.....	589	49	56	19	42	11	7
17 Total salaries.....	\$469,223	\$42,778	\$41,722	\$18,715	\$34,859	\$3,200	\$4,292
18 Men—							
19 Number.....	424	32	46	15	25	4	4
20 Salaries.....	\$395,794	\$34,538	\$37,210	\$17,430	\$26,422	\$2,575	\$2,990
21 Women—							
22 Number.....	165	17	10	4	17	2	3
23 Salaries.....	\$73,429	\$8,240	\$4,512	\$1,285	\$8,437	\$625	\$1,302
24 Wage-earners, including pieceworkers, and total wages:							
25 Greatest number employed at any one time during the year....	13,805	656	1,331	371	374	192	176
26 Least number employed at any one time during the year.....	8,426	446	956	259	169	140	122
27 Average number.....	10,645	516	1,134	321	263	165	106
28 Total wages.....	\$3,840,253	\$222,688	\$424,934	\$86,621	\$101,339	\$70,848	\$35,359
29 Men 16 years and over—							
30 Average number.....	4,174	165	352	90	129	53	38
31 Wages.....	\$2,005,890	\$110,565	\$188,702	\$35,997	\$59,454	\$31,634	\$18,170
32 Women 16 years and over—							
33 Average number.....	6,245	337	708	218	134	112	53
34 Wages.....	\$1,795,988	\$109,029	\$230,056	\$48,474	\$41,885	\$39,214	\$14,305
35 Children under 16 years—							
36 Average number.....	226	14	44	13	.....	.....	15
37 Wages.....	\$38,375	\$3,094	\$8,176	\$2,150	.....	.....	\$2,884
38 Average number of wage-earners, including pieceworkers, employed during each month:							
39 Men 16 years and over—							
40 January.....	3,655	162	356	94	108	52	27
41 February.....	3,695	166	354	93	110	48	27
42 March.....	3,794	166	371	93	116	50	28
43 April.....	3,852	158	381	92	123	52	29
44 May.....	3,915	165	393	93	125	53	28
45 June.....	4,188	163	389	91	133	51	27
46 July.....	4,459	165	399	90	142	51	28
47 August.....	4,556	161	407	91	160	54	28
48 September.....	4,561	167	387	83	149	56	29
49 October.....	4,520	170	381	82	150	57	27
50 November.....	4,503	169	393	90	120	57	31
51 December.....	4,390	168	373	88	112	55	32
52 Women 16 years and over—							
53 January.....	5,582	328	685	212	108	116	41
54 February.....	5,556	345	684	212	117	111	42
55 March.....	5,791	341	706	215	134	113	42
56 April.....	5,876	336	707	220	146	115	40
57 May.....	5,885	341	713	220	127	109	43
58 June.....	6,108	330	708	208	130	111	43
59 July.....	6,585	333	706	217	164	111	67
60 August.....	6,767	329	722	222	163	107	72
61 September.....	6,815	336	706	216	145	113	73
62 October.....	6,812	342	704	217	140	111	73
63 November.....	6,702	347	725	229	134	114	49
64 December.....	6,461	336	730	228	100	113	51
65 Children under 16 years—							
66 January.....	196	13	42	15	.....	.....	13
67 February.....	199	13	42	13	.....	.....	13
68 March.....	206	13	44	13	.....	.....	13
69 April.....	206	13	44	13	.....	.....	13
70 May.....	213	14	45	14	.....	.....	12
71 June.....	225	14	45	13	.....	.....	11
72 July.....	249	15	44	13	.....	.....	12
73 August.....	262	15	45	12	.....	.....	20
74 September.....	250	13	44	11	.....	.....	24
75 October.....	236	13	43	11	.....	.....	19
76 November.....	233	16	44	14	.....	.....	14
77 December.....	237	16	46	14	.....	.....	16
78 Miscellaneous expenses:							
79 Total.....	\$1,507,693	\$68,169	\$181,583	\$20,789	\$133,874	\$10,119	\$22,202
80 Rent of works.....	\$84,021	\$9,136	\$6,136	\$225	\$940	\$1,950	\$592
Taxes.....	\$22,330	\$2,239	\$2,917	\$694	\$1,324	\$637	\$535
Rent of offices, interest, insurance, and all other sundry ex- penses not hitherto included.	\$1,007,619	\$56,352	\$172,530	\$19,870	\$121,130	\$7,532	\$21,075
Contract work.....	\$393,723	.....	.....	.....	\$10,480	.....	.....
Materials used:							
Aggregate cost.....	\$10,000,889	\$458,573	\$852,347	\$342,985	\$358,244	\$135,299	\$113,379
Hides and skins—							
Total cost.....	\$8,109,523	\$414,372	\$770,790	\$240,402	\$292,754	\$106,502	\$90,004
Deerskins—							
Dozens.....	66,280	6,473	672	92	111	50	.....
Cost.....	\$888,210	\$115,411	\$16,725	\$1,659	\$2,070	\$1,500	.....
Sheepskins—							
Domestic—							
Dozens.....	342,764	11,316	37,715	20,476	10,224	2,425	6,031
Cost.....	\$1,648,857	\$57,491	\$217,645	\$109,880	\$59,438	\$17,170	\$29,527
Imported—							
Dozens.....	88,881	355	40	.....	100	3,669	.....
Cost.....	\$845,214	\$3,635	\$407	.....	\$1,250	\$27,812	.....
Kid and suede—							
Domestic—							
Dozens.....	140,502	3,275	48	.....	1,745	.....	110
Cost.....	\$938,091	\$25,238	\$550	.....	\$15,705	.....	\$700
Imported—							
Dozens.....	110,282	1,857	220	2,575	28
Cost.....	\$1,117,817	\$15,363	\$2,030	\$27,680	\$300

LEATHER GLOVES AND MITTENS.

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DETAILED SUMMARY, BY STATES: 1905.

Minnesota.	New Hamp- shire.	New Jersey.	New York.	Ohio.	Oregon.	Pennsylva- nia.	Virginia.	Washington.	Wisconsin.	All other states. ¹	
7	3	5	194	11	4	4	3	7	21	11	1
\$69,056	\$304,134	\$111,106	\$6,348,407	\$93,539	\$24,136	\$66,239	\$135,100	\$36,191	\$1,206,584	\$144,043	2
	\$10,000	\$4,000	\$123,335	\$2,100	\$150	\$2,200	\$9,500		\$8,100	\$1,250	3
	\$40,000	\$20,147	\$346,411	\$5,000	\$400	\$6,050	\$24,500		\$22,604	\$2,350	4
\$9,430	\$6,908	\$13,088	\$411,396	\$17,144	\$3,384	\$6,150	\$3,800	\$9,891	\$110,406	\$11,148	5
\$59,626	\$247,226	\$73,871	\$5,467,265	\$69,295	\$20,202	\$51,839	\$97,300	\$26,300	\$1,065,474	\$129,295	6
12	2	10	276	7	5	4	3	8	12	11	7
9	8	18	296	9	1	3	10	1	72	13	8
\$6,431	\$9,248	\$10,443	\$262,873	\$5,244	\$300	\$1,768	\$3,592	\$900	\$81,663	\$13,875	9
	1		13	2					12	2	10
	\$600		\$36,600	\$2,270					\$30,450	\$2,400	11
9	7	18	283	7	1	3	10	1	60	11	12
\$6,431	\$8,288	\$10,443	\$226,273	\$2,974	\$300	\$1,768	\$3,592	\$900	\$51,213	\$11,475	13
8	5	6	211	3		3	11	1	45	10	14
\$6,171	\$7,040	\$6,954	\$192,105	\$1,860		\$1,768	\$2,500	\$900	\$44,156	\$11,175	15
1	2	12	72	4	1		4		15	1	16
\$260	\$1,248	\$3,489	\$34,168	\$1,114	\$300		\$1,092		\$7,057	\$300	17
80	214	247	7,782	135	16	56	349	71	1,571	184	18
52	201	179	4,169	89	16	49	194	51	1,165	169	19
65	208	211	5,613	93	16	45	273	53	1,396	167	20
\$21,646	\$74,898	\$77,796	\$2,131,053	\$28,607	\$6,264	\$10,794	\$39,144	\$22,655	\$437,327	\$48,280	21
16	145	57	2,485	32	3	14	23	19	449	61	22
\$9,593	\$58,317	\$35,342	\$1,204,255	\$12,100	\$4,114	\$4,575	\$7,620	\$11,000	\$191,450	\$25,002	23
48	50	149	3,056	61	3	23	245	34	897	97	24
\$11,883	\$16,581	\$41,672	\$915,722	\$16,507	\$2,150	\$5,969	\$31,524	\$11,655	\$236,984	\$22,378	25
1		11	72			3			50	9	26
\$170		\$782	\$11,076			\$250			\$8,893	\$900	27
16	152	65	2,040	35	3	14	33	21	416	56	28
16	152	65	2,073	35	3	14	33	21	422	58	29
16	150	66	2,123	35	3	14	32	19	448	59	30
16	150	66	2,159	36	3	14	27	19	463	59	31
16	147	56	2,224	25	3	14	22	19	468	59	32
16	147	54	2,499	25	3	14	22	18	468	63	33
16	144	49	2,731	28	3	14	22	20	464	63	34
16	144	49	2,791	29	3	14	22	20	469	63	35
16	147	51	2,815	32	3	14	27	18	469	63	36
16	147	51	2,786	34	3	14	32	18	455	62	37
16	147	56	2,832	35	3	14	32	17	423	63	38
16	149	56	2,747	35	3	14	32	18	423	64	39
51	62	154	2,550	63	3	25	258	37	790	94	40
54	61	161	2,428	64	3	25	258	37	851	98	41
56	62	161	2,579	62	3	21	258	41	894	98	42
52	62	164	2,654	71	3	20	225	40	920	96	43
52	60	133	2,724	51	3	31	200	39	938	96	44
55	60	144	2,945	51	3	32	202	38	944	99	45
44	60	130	3,370	57	3	32	202	29	960	95	46
45	57	132	3,532	58	3	30	207	29	961	93	47
44	57	143	3,549	62	3	30	237	30	964	102	48
44	59	144	3,548	66	3	30	283	30	915	98	49
41	59	162	3,491	63	3	30	293	29	831	97	50
38	61	160	3,302	64	3	30	317	29	796	98	51
1		5	50			3			45	9	52
1		5	51			3			49	9	53
1		5	53			3			52	9	54
1		5	48			3			57	9	55
1		5	54			3			56	9	56
1		5	71			3			53	9	57
1		5	95			3			52	9	58
1		5	101			3			51	9	59
1		5	89			3			51	9	60
1		5	83			3			49	9	61
1		5	83			3			44	9	62
1		5	86			3			41	9	63
\$4,740	\$18,649	\$8,666	\$861,142	\$8,080	\$5,411	\$949	\$9,263	\$9,500	\$130,842	\$13,715	64
\$2,654	\$170	\$804	\$41,479	\$2,024	\$660	\$20		\$2,346	\$11,990	\$2,453	65
\$280	\$1,267	\$292	\$7,363	\$440	\$71	\$106	\$400	\$194	\$2,904	\$667	66
\$1,806	\$17,212	\$7,570	\$452,607	\$5,616	\$4,680	\$823	\$6,363	\$6,960	\$115,882	\$9,611	67
			\$379,693				\$2,500		\$60	\$984	68
\$52,377	\$173,368	\$115,296	\$5,696,256	\$65,319	\$19,077	\$33,145	\$57,150	\$55,095	\$1,338,968	\$134,011	69
\$46,604	\$137,073	\$101,235	\$4,623,245	\$54,948	\$17,976	\$26,350	\$53,900	\$51,028	\$992,468	\$89,872	70
382	7,230		48,471	41	148	5	240	146	2,015	204	71
\$8,525	\$72,763		\$617,555	\$1,000	\$2,182	\$89	\$3,414	\$3,500	\$36,827	\$4,990	72
458	7,264	3,150	127,942	3,878	1,000	2,383	2,670	750	102,584	2,698	73
\$3,892	\$30,114	\$37,125	\$730,649	\$13,255	\$4,457	\$11,799	\$21,810	\$4,800	\$281,349	\$18,456	74
		4,673	78,099	1,250					500	195	75
		\$46,150	\$753,899	\$5,100					\$4,500	\$2,461	76
189	167	200	133,169			5	897		215	482	77
\$1,764	\$1,017	\$1,800	\$878,018			\$50	\$7,167		\$2,380	\$3,702	78
204		1,425	101,010				50		540	2,373	79
\$1,610		\$16,160	\$1,024,631				\$500		\$5,400	\$24,143	80

¹ Includes establishments distributed as follows: Colorado, 1; Connecticut, 1; Kansas, 1; Kentucky, 1; Maine, 1; Maryland, 1; Missouri, 2; Nebraska, 1; West Virginia, 1; Wyoming, 1.

TABLE 10.—LEATHER GLOVES AND MITTENS—

	United States.	California.	Illinois.	Indiana.	Iowa.	Massachu- setts.	Michigan.
Materials used—Continued.							
Hides and skins—Continued.							
Hogskins—							
81 Domestic—							
82 Dozens	170,633	3,772	57,348		7,092		650
83 Cost	\$105,481	\$2,728	\$38,003		\$5,281		\$100
Imported—							
84 Dozens	35,013	6,060	4,000		4,752		
85 Cost	\$25,292	\$4,964	\$5,250		\$1,772		
Horse and cow hides—							
86 Number of sides	1,077,117	148,077	166,695	77,584	70,370	12,000	17,647
87 Cost	\$2,140,836	\$181,449	\$421,979	\$124,145	\$186,041	\$27,020	\$51,866
88 All other leather	\$399,725	\$23,456	\$54,868	\$4,718	\$19,167	\$5,320	\$7,511
89 Fuel	\$44,293	\$320	\$6,337	\$1,768	\$2,299	\$750	\$1,385
90 Rent of power and heat	\$27,018	\$2,104	\$2,730	\$240	\$1,212	\$566	\$339
91 Mill supplies	\$7,531	\$481	\$439	\$182	\$345	\$140	\$81
92 All other materials	\$1,761,225	\$38,016	\$71,561	\$100,043	\$56,234	\$26,036	\$20,255
93 Freight	\$51,299	\$3,280	\$490	\$350	\$5,400	\$1,305	\$1,315
Products:							
94 Aggregate value	\$17,740,385	\$910,596	\$1,690,804	\$514,188	\$698,400	\$264,811	\$191,693
All gloves, mittens, and gauntlets—							
95 Total dozen pairs	3,370,146	114,108	381,242	170,782	104,278	43,460	23,077
96 Total value	\$17,122,772	\$889,376	\$1,682,624	\$514,188	\$601,350	\$218,025	\$132,434
Dress gloves, mittens, and gauntlets—							
97 Total dozen pairs	977,594	12,685	19,885		27,515	5,415	1,110
98 Total value	\$7,235,725	\$115,623	\$136,403		\$192,650	\$51,175	\$17,500
Men's—							
Lined—							
99 Dozen pairs	314,150	1,734	7,572		400		350
100 Value	\$2,027,900	\$20,617	\$45,894		\$4,200		\$7,000
Unlined—							
101 Dozen pairs	401,799	3,524	8,746		11,200	950	760
102 Value	\$3,296,200	\$39,773	\$54,312		\$87,400	\$9,025	\$10,500
Women's—							
Lined—							
103 Dozen pairs	49,364		53		100		
104 Value	\$394,377		\$630		\$1,250		
Unlined—							
105 Dozen pairs	133,969	7,222	3,481		15,765	4,465	
106 Value	\$1,206,235	\$53,173	\$35,352		\$99,550	\$42,150	
Children's—							
Lined—							
107 Dozen pairs	68,383		5		50		
108 Value	\$245,414		\$25		\$250		
Unlined—							
109 Dozen pairs	9,929	205	28				
110 Value	\$65,599	\$2,060	\$190				
Working gloves, mittens, and gauntlets—							
111 Total dozen pairs	2,392,552	101,423	361,357	170,782	76,763	38,045	21,967
112 Total value	\$9,887,047	\$773,753	\$1,546,221	\$514,188	\$408,700	\$166,850	\$114,934
Men's—							
Lined—							
113 Dozen pairs	1,002,933	12,236	221,045	78,312	31,031	11,625	507
114 Value	\$4,305,181	\$99,500	\$1,037,075	\$258,937	\$140,050	\$52,600	\$4,578
Unlined—							
115 Dozen pairs	1,196,533	81,057	125,810	74,470	43,632	15,840	21,460
116 Value	\$4,886,489	\$615,035	\$470,888	\$193,251	\$263,925	\$45,500	\$110,356
Women's—							
Lined—							
117 Dozen pairs	30,324	17	7,750				
118 Value	\$103,948	\$205	\$27,000				
Unlined—							
119 Dozen pairs	40,133	4,753	700			9,000	
120 Value	\$214,572	\$44,016	\$1,050			\$64,000	
Children's—							
Lined—							
121 Dozen pairs	93,290	244	2,600	18,000	2,100		
122 Value	\$287,104	\$1,202	\$4,795	\$62,000	\$4,725		
Unlined—							
123 Dozen pairs	29,339	3,116	3,452			1,580	
124 Value	\$89,753	\$13,795	\$5,413			\$4,750	
125 All other products	\$573,991	\$20,500	\$7,050		\$83,800	\$44,686	\$59,259
126 Amount received for custom work and repairing	\$43,622	\$720	\$1,130		\$13,250	\$2,100	
Power:							
127 Number of establishments reporting	227	19	17	5	7	5	7
128 Total horsepower	2,762	44	568	106	295	51	107
Owned—							
Engines—							
Steam—							
129 Number	43		3	2	4	1	1
130 Horsepower	1,676		523	46	276	40	50
Gas or gasoline—							
131 Number	41	2	4	2			4
132 Horsepower	283	8	15	40			45
Water wheels—							
133 Number	4						
134 Horsepower	242						
Water motors—							
135 Number	6						
136 Horsepower	8						
Electric motors—							
137 Number	4		2	1			
138 Horsepower	36		8	10			
Rented—							
Electric motors—							
139 Number	172	17	11	1	5	3	4
140 Horsepower	436	35	18	10	19	8	12
141 Other kind, horsepower	80		4			3	
Furnished to other establishments, horsepower	36						

LEATHER GLOVES AND MITTENS.

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DETAILED SUMMARY, BY STATES: 1905—Continued.

Minnesota.	New Hampshire.	New Jersey.	New York.	Ohio.	Oregon.	Pennsylvania.	Virginia.	Washington.	Wisconsin.	All other states.	
467			87,468		480	564	3,600	750	8,010	432	81
\$421			\$45,800		\$300	\$519	\$3,600	\$1,000	\$7,308	\$421	82
	5,201		15,000								83
	\$1,716		\$11,590								84
11,803	21,726		177,224	15,784	6,596	5,942	8,052	14,040	307,009	16,568	85
\$24,699	\$30,563		\$367,496	\$32,095	\$10,737	\$11,734	\$17,409	\$33,981	\$585,119	\$34,503	86
\$5,693	\$900		\$193,607	\$3,498	\$300	\$2,159		\$7,747	\$69,585	\$1,196	87
\$394	\$2,893	\$218	\$22,656	\$309	\$175	\$429	\$500	\$25	\$3,178	\$657	88
\$415		\$027	\$13,152	\$227	\$144			\$439	\$4,523	\$300	89
\$61	\$50	\$51	\$3,053	\$36	\$47	\$216	\$150	\$56	\$2,052	\$91	90
\$4,084	\$29,785	\$13,015	\$1,011,617	\$8,475	\$735	\$6,024	\$2,600	\$2,947	\$327,573	\$42,225	91
\$819	\$3,567	\$150	\$22,533	\$1,324		\$126		\$600	\$9,174	\$866	92
\$98,133	\$297,157	\$223,726	\$9,946,443	\$117,654	\$39,530	\$48,755	\$127,816	\$108,150	\$2,208,705	\$253,824	93
10,173	46,155	26,201	1,881,194	50,440	4,106	10,602	21,232	13,853	443,842	25,401	94
\$71,993	\$294,607	\$223,606	\$9,794,075	\$114,543	\$38,050	\$46,755	\$127,816	\$100,050	\$2,027,451	\$245,829	95
344		18,201	816,706				2,463	6,350	61,500	5,420	96
\$6,262		\$175,606	\$6,221,345				\$16,811	\$32,900	\$204,000	\$65,450	97
250		842	264,622				680		35,500	2,200	98
\$5,162		\$7,265	\$1,752,242				\$5,420		\$146,000	\$34,100	99
83		16,256	343,982				1,728	6,350	5,000	3,220	100
\$1,026		\$158,844	\$2,849,952				\$11,118	\$32,900	\$10,000	\$31,350	101
11			49,200								102
\$74			\$392,423								103
		872	102,114				50				104
		\$7,763	\$967,997				\$250				105
			47,323				5		21,000		106
			\$197,116				\$23		\$48,000		107
		231	9,465								108
		\$1,734	\$61,615								109
9,829	46,155	8,000	1,064,488	50,440	4,106	10,602	18,769	7,503	382,342	19,981	110
\$65,731	\$294,607	\$48,000	\$3,572,730	\$114,543	\$38,050	\$46,755	\$111,005	\$67,150	\$1,823,451	\$180,379	111
3,537	6,940		409,492	16,195	200	6,979	5,900	1,000	196,156	1,778	112
\$26,595	\$35,504		\$1,710,277	\$38,315	\$1,800	\$32,671	\$34,050	\$10,000	\$810,988	\$12,241	113
3,167	38,630	8,000	545,270	19,345	3,806	2,623	12,869	6,503	176,238	17,813	114
\$26,036	\$257,303	\$48,000	\$1,498,500	\$46,378	\$35,350	\$10,334	\$76,955	\$57,150	\$965,805	\$165,723	115
50			17,849						4,538	120	116
\$425			\$55,496						\$19,622	\$1,200	117
75			18,175	2,000	100				5,000	270	118
\$675			\$71,530	\$5,000	\$900				\$26,180	\$1,215	119
3,000	245		57,911	7,900		1,000			250		120
\$12,000	\$800		\$181,857	\$15,350		\$3,750			\$625		121
	300		15,791	5,000					100		122
\$24,720	\$1,000		\$55,070	\$9,500					\$225		123
\$1,420	\$2,550		\$131,035	\$3,111	\$980			\$7,800	\$181,104	\$7,396	124
		\$120	\$21,333		\$500	\$2,000		\$300	\$150	\$599	125
4	3	3	116	7	2	2	1	7	18	4	126
12	437	13	770	38	10	15	20	15	244	17	127
	1		24		1	2	2		1	1	128
	225		449		8	15	20		20	4	129
1	2		13	4					6	3	130
7	2		50	34					69	13	131
	2		2								132
	210		32								133
			6								134
											135
									1		136
									18		137
2		4	91	3	1			6	24		138
3		13	221	4	2			9	82		139
2			10					6	55		140
	35					1					141

BUTTER, CHEESE,
AND CONDENSED MILK

BUTTER, CHEESE, AND CONDENSED MILK.

By EDMUND C. BULLOCK.

This report contains (1) a statistical discussion of the manufacture of butter, cheese, and condensed milk in the United States and in the various states, and the foreign trade in butter and cheese; (2) a discussion of milk products and by-products.

Prior to 1905 the manufacture of butter, cheese, and condensed milk was presented in the Census reports as one industry. At the census of 1905 returns were made as for separate industries, and the statistics for each industry are presented in detail in Tables 10, 11, and 12 at the end of this report. As it was impracticable to separate the industries for former censuses, the statistics for 1905 have been combined in all tables

where comparisons are made with previous censuses. In comparing the statistics for the censuses of 1880, 1890, 1900, and 1905, a few limitations should be kept in mind. The censuses before 1905 include statistics of some establishments engaged primarily in selling milk and cream that made some butter or cheese, while for the census of 1905 statistics for only such establishments as were engaged primarily in manufacturing butter, cheese, or condensed milk are included. Plants engaged only in separating cream from milk were not regarded as engaged in manufacturing.

A general view of the growth of the industry in the United States is given in Table 1.

TABLE 1.—BUTTER, CHEESE, AND CONDENSED MILK—COMPARATIVE SUMMARY, WITH PER CENT OF INCREASE FOR EACH CENSUS PERIOD: 1880 TO 1905.

	CENSUS.				PER CENT OF INCREASE.			
	1905	1900	1890	1880	1900 to 1905	1890 to 1900	1880 to 1890	1880 to 1905
Number of establishments.....	8,926	9,242	4,552	3,932	13.4	103.0	15.8	127.0
Capital.....	\$47,255,556	\$36,303,164	\$16,016,573	\$9,604,803	30.2	126.7	66.8	392.0
Salaried officials, clerks, etc., number.....	3,507	2,818	2,150	(³)	24.4	31.1	.....	.....
Salaries.....	\$1,376,097	\$911,712	\$367,151	(³)	50.9	5.1	.....	.....
Wage-earners, average number.....	15,557	12,799	12,219	7,903	21.5	4.7	54.6	96.8
Total wages.....	\$8,412,937	\$6,145,561	\$4,248,854	\$1,546,495	36.9	44.6	174.7	444.0
Men 16 years and over.....	14,036	11,637	11,429	6,419	20.6	1.8	78.0	118.7
Wages.....	\$7,970,247	\$5,838,989	\$4,102,462	(³)	36.5	42.3	.....	.....
Women 16 years and over.....	1,405	1,041	690	1,330	35.0	50.9	148.1	5.6
Wages.....	\$421,933	\$289,190	\$135,426	(³)	45.9	113.5	.....	.....
Children under 16 years.....	116	121	100	154	14.1	21.0	135.1	124.7
Wages.....	\$20,757	\$17,382	\$10,966	(³)	19.4	58.5	.....	.....
Miscellaneous expenses.....	\$4,074,268	\$1,574,790	\$813,954	(⁴)	158.7	93.5	.....	.....
Cost of materials used.....	\$142,920,277	\$108,841,200	\$49,819,301	\$18,363,579	31.3	118.5	171.3	678.3
Value of products.....	\$168,182,789	\$130,783,349	\$60,635,705	\$28,742,510	28.6	115.7	135.5	553.3

¹ Decrease.

² Includes proprietors and firm members, with their salaries; number only reported in 1900 and 1905, but not included in this table.

³ Not reported separately.

⁴ Not reported.

The industry during the last quarter of a century has had a remarkable growth, increasing over five-fold in value of products. With this large gain and that in the cost of materials, it is interesting to compare the smaller increases in the number of establishments, 127 per cent, and in wage-earners, 96.8 per cent, as an indication of the condensation of the industry and of the use of labor saving machinery. The percentage for the increase in the number of wage-earners is not strictly accurate, as in 1880 the number of salaried officials, etc., was not reported separately.

If, however, in order to make a comparison, the two items are combined in 1905, the increase is only 141.2 per cent. The larger increase in wages, still further augmented by including in the figures for 1905 the wages or salaries paid to officials and clerks, is caused not only by higher wages, but, as the decrease in children shows, by a change in the kind of workmen. The average amount of capital invested per establishment has grown from \$2,443 in 1880 to \$5,294 in 1905, and the average value of products from \$6,547 to \$18,842. The period of the greatest relative increase in value of

products was in the decade ending with the year 1890. It was during this decade that the centrifugal separator came into general use, giving a great impetus to the establishment of butter factories or creameries.

From 1890 to 1900 the industry advanced rapidly, and during the last five years its growth has been substantial and healthy. In the period from 1900 to 1905, however, the number of establishments decreased from 9,242 to 8,926, a loss of 316, or 3.4 per cent. There are two reasons which may be given in explanation of this decrease. One was the organization of large creameries by the consolidation or absorption of smaller plants. This centralization was hastened by the hand separator. As cream can easily be hauled great distances, the separator made the farmer independent of the nearby creamery to which he formerly delivered his milk, and also made it possible for a single creamery to extend its purchases of raw material over a large territory. The larger plants, which manufactured butter at less expense and thus being able to sell at a lower price, gradually crowded out or absorbed the smaller plants. The second reason for the decrease was that many factories voluntarily abandoned the manufacture of butter and cheese for the purpose of engaging in the sale of milk and cream.

TABLE 2.—Butter, cheese, and condensed milk—quantity and cost of materials used, with amount and per cent of increase: 1905 and 1900.

	1905	1900	INCREASE.	
			Amount.	Per cent.
Materials used, aggregate cost.....	\$142,920,277	\$108,841,200	\$34,079,077	31.3
In making butter:				
Total cost.....	\$96,113,391	\$73,489,355	\$22,624,036	30.8
Milk—				
Pounds.....	8,393,098,823	8,514,806,634	121,707,811	1.4
Cost.....	\$67,742,351	\$65,335,287	\$2,407,064	3.7
Cream—				
Pounds.....	588,188,471	203,673,958	384,512,513	188.8
Cost.....	\$28,371,040	\$8,154,068	\$20,216,972	247.9
In making cheese:				
Milk—				
Pounds.....	3,026,755,225	2,741,898,114	284,857,111	10.4
Cost.....	\$23,516,725	\$21,258,712	\$2,258,013	10.6
In making condensed milk:				
Total cost.....	\$11,788,561	\$7,252,124	\$4,534,437	62.5
Milk—				
Pounds.....	727,450,502	421,378,073	306,072,429	72.6
Cost.....	\$8,470,669	\$4,662,437	\$3,808,232	81.7
Sugar—				
Pounds.....	67,810,031	50,873,859	16,936,172	33.3
Cost.....	\$3,315,892	\$2,589,687	\$726,205	28.0
Fuel.....	\$2,297,335	\$1,708,634	\$588,701	34.5
Rent of power and heat	\$49,060	\$17,285	\$31,775	183.8
All other materials.....	\$9,157,205	\$5,115,090	\$4,042,115	79.0

¹ Decrease.

Establishments engaged in industries other than those specified reported materials valued at \$505,340,

from which butter and condensed milk valued at \$520,317 were manufactured. These establishments, materials, and products are included in reports on other industries and are therefore omitted from the tables in this bulletin.

Table 2 shows the quantity and cost of materials used in the manufacture of butter, cheese, and condensed milk in 1900 and 1905, with the amount and percentage of increase.

The decrease in the quantity of milk and the increase in the amount of cream used in the manufacture of butter are due to the same cause. Many farmers who formerly delivered milk at the separating stations of the factories now deliver cream only, the hand separator making it more economical to separate the cream and milk on the farms. The great increase in the price of cream is accounted for by the tendency of farmers near large cities to sell their milk and cream to milk dealers. In this way the supply offered to the factories has been curtailed and the price consequently increased.

Table 3 shows the quantity and value of products for 1900 and 1905, with the amount and per cent of increase.

TABLE 3.—Butter, cheese, and condensed milk—quantity and value of products, with amount and per cent of increase: 1905 and 1900.

	1905	1900	INCREASE.	
			Amount.	Per cent.
Products, total value.....	\$168,182,789	\$130,783,349	\$37,399,440	28.6
Butter:				
Pounds.....	531,478,141	420,126,546	111,351,595	26.5
Value.....	\$113,189,453	\$84,079,754	\$29,109,699	34.6
Cheese:				
Pounds.....	317,144,872	281,972,324	35,172,548	12.5
Value.....	\$28,611,760	\$26,519,829	\$2,091,931	7.9
Condensed milk:				
Pounds.....	308,485,182	186,921,787	121,563,395	65.0
Value.....	\$20,149,282	\$11,888,792	\$8,260,490	69.5
All other products.....	\$6,232,294	\$8,294,974	\$2,062,680	24.9

¹ Decrease.

The great proportionate increase in both the amount and value of condensed milk is a noticeable feature of this table. Statistics for this industry are discussed at greater length on page 313. The data for the butter and cheese industries are also discussed more fully in the following pages of the report.

Table 4 is a comparative summary of the principal items of the butter, cheese, and condensed milk industry, by states and geographic divisions, for the censuses of 1900 and 1905.

TABLE 4.—BUTTER, CHEESE, AND CONDENSED MILK—COMPARATIVE SUMMARY, BY STATES, TERRITORIES, AND GEOGRAPHIC DIVISIONS: 1905 AND 1900.

STATE OR TERRITORY.	Census.	Number of establishments.	Capital.	SALARIED OFFICIALS, CLERKS, ETC.		WAGE-EARNERS AND WAGES.		Miscellaneous expenses.	Cost of materials used.	Value of products.	Rank.
				Number.	Salaries.	Average number.	Wages.				
United States.....	1905 1900	8,926 9,242	\$47,255,556 36,308,164	3,507 2,818	\$1,376,097 911,712	15,557 12,799	\$8,412,937 6,145,561	\$4,074,268 1,574,790	\$142,920,277 108,841,200	\$168,182,789 130,783,349	..........
North Atlantic division.....	1905 1900	2,826 3,202	15,251,659 12,847,263	797 651	364,849 273,819	5,001 4,530	2,536,146 2,140,215	1,057,489 610,537	46,616,798 41,027,176	54,176,814 48,485,063	..........
Maine.....	¹ 1905 1900	46 61	385,365 429,510	24 39	8,923 16,046	78 162	47,393 70,283	40,497 23,065	1,045,356 1,407,050	1,229,978 1,727,684	19 13
New Hampshire.....	¹ 1905 1900	34 53	163,256 311,308	20 34	6,188 11,490	63 119	36,452 58,323	21,978 21,229	730,380 1,226,388	864,109 1,467,503	22 14
Vermont.....	¹ 1905 1900	220 254	1,053,369 1,139,988	133 135	29,951 35,405	419 480	223,254 222,042	99,898 66,392	5,815,977 4,772,002	6,416,434 5,500,545	9 7
Massachusetts.....	¹ 1905 1900	36 50	210,557 324,382	47 24	9,330 12,513	64 99	40,803 61,636	11,839 15,240	778,851 1,024,575	876,958 1,198,159	21 16
Rhode Island ¹	1900	3	7,800	4	1,125	9	3,427	628	28,938	39,569	35
Connecticut.....	¹ 1905 1900	41 71	159,447 274,733	28 47	15,289 24,402	95 166	57,155 84,863	24,391 21,266	670,321 881,614	814,703 1,093,703	23 18
New York.....	1905 1900	1,766 1,908	9,066,426 7,084,130	215 227	192,400 122,292	2,868 2,439	1,485,072 1,157,081	576,240 337,303	26,792,872 22,486,869	31,047,776 26,557,888	1 1
New Jersey.....	¹ 1905 1900	29 53	135,481 242,284	5 14	1,170 4,350	43 74	21,075 36,852	10,909 9,219	317,752 488,105	395,499 610,006	26 24
Pennsylvania.....	1905 1900	645 749	3,649,116 3,033,128	311 127	88,566 45,596	1,218 976	556,310 445,708	237,544 116,195	9,656,319 8,711,635	11,581,115 10,290,006	6 5
Not distributed by states ¹	1905	9	428,642	14	13,032	153	68,632	34,193	808,970	950,242	.....
South Atlantic division.....	1905 1900	81 124	282,290 353,690	9 24	4,466 9,832	125 161	47,687 51,589	24,213 17,098	612,003 802,537	791,629 1,025,079	..........
Delaware.....	¹ 1905 1900	11 22	63,147 85,155	4 5	2,160 2,120	25 34	12,038 13,093	9,447 4,577	159,846 184,196	197,422 252,892	28 26
Maryland.....	1905 1900	55 84	175,928 234,058	5 18	2,306 7,312	80 113	29,035 33,998	11,380 11,151	399,297 557,647	518,780 693,795	25 21
Virginia.....	¹ 1905 1900	4 10	10,120 15,145	..... .....	..... .....	..... 8	1,236 2,158	1,411 930	16,180 39,951	20,209 51,942	37 34
West Virginia ¹	1900	4	5,835	.....	.....	2	480	80	10,228	12,284	40
Georgia.....	1905 1900	6 4	26,300 13,497	..... 1	..... 400	14 4	3,964 1,860	1,245 360	26,817 10,515	38,878 14,166	35 38
Not distributed by states ¹	1905	5	6,795	.....	.....	3	1,414	730	9,863	16,360	.....
North Central division.....	1905 1900	5,425 5,427	26,546,900 20,491,038	2,375 1,879	773,967 497,345	8,895 7,109	4,880,403 3,475,943	2,501,560 814,514	82,376,785 60,900,886	96,876,258 73,643,248	..........
Ohio.....	1905 1900	431 479	1,428,224 1,041,093	61 89	18,677 19,088	488 389	291,947 189,804	73,123 35,214	3,729,197 3,054,764	4,593,222 3,808,996	10 9
Indiana.....	¹ 1905 1900	87 112	361,952 287,360	65 23	19,018 6,542	187 118	97,610 56,751	149,322 15,724	1,011,209 711,059	1,290,667 929,858	17 19
Illinois.....	1905 1900	405 527	5,322,352 4,465,752	295 220	154,210 136,463	1,735 1,483	828,577 696,688	514,737 177,417	10,708,998 10,199,429	13,276,533 12,879,299	4 4
Michigan.....	1905 1900	371 286	1,888,385 1,250,897	167 92	64,658 25,360	875 503	432,302 222,245	152,557 37,001	7,027,263 3,274,264	8,208,706 3,918,995	7 8
Wisconsin.....	1905 1900	2,360 2,018	5,897,418 4,917,940	323 414	68,926 69,676	2,298 1,780	1,328,076 893,499	447,417 157,123	26,406,185 16,623,859	29,994,791 20,120,147	2 2
Minnesota.....	1905 1900	771 596	3,305,120 2,264,956	236 341	62,926 59,284	1,041 740	633,532 398,224	288,040 102,096	11,139,565 7,188,711	12,871,129 8,479,896	5 6
Iowa.....	¹ 1905 1900	655 907	2,919,092 3,459,017	802 413	136,959 81,425	1,160 1,133	687,175 588,653	360,826 153,990	12,895,630 13,501,556	15,028,326 15,846,077	3 3
Missouri.....	1905 1900	54 79	545,639 199,796	51 24	32,836 4,994	148 74	68,846 31,138	96,711 5,989	1,033,031 329,158	1,313,958 431,836	10 25
North Dakota.....	1905 1900	60 21	202,178 51,515	25 5	1,575 1,250	55 13	38,246 7,725	10,744 1,231	478,274 96,286	562,481 122,128	24 29
South Dakota.....	¹ 1905 1900	97 138	484,139 460,932	126 95	26,293 11,786	192 148	125,360 77,401	57,253 18,523	1,833,356 1,005,237	2,182,653 1,199,493	14 15
Nebraska.....	1905 1900	40 93	1,861,196 952,185	113 66	102,053 40,569	253 333	136,687 146,522	185,084 38,823	2,671,978 1,854,228	3,326,110 2,253,893	12 12
Kansas.....	1905 1900	90 171	1,992,544 1,139,595	102 97	74,536 40,908	414 395	188,127 167,293	123,233 71,383	3,255,735 3,062,335	3,946,349 3,652,530	11 10
Not distributed by states ¹	1905	4	338,661	9	11,300	49	23,918	42,513	186,364	281,333	.....

¹The returns for the following establishments are not shown separately by states: 1905—Butter factories, Montana, 2; Rhode Island, 1; West Virginia, 1. Cheese factories, Connecticut, 1; Delaware, 1; Massachusetts, 2; South Dakota, 1; Virginia, 1; West Virginia, 2. Condensed milk factories, Colorado, 1; Indiana, 2; Iowa, 1; Maine, 1; New Hampshire, 1; New Jersey, 2; Oregon, 2; Utah, 1; Vermont, 1. 1900—Mississippi, 2; Vermont, 1; Wyoming, 2.

MANUFACTURES.

TABLE 4.—BUTTER, CHEESE, AND CONDENSED MILK—COMPARATIVE SUMMARY, BY STATES, TERRITORIES, AND GEOGRAPHIC DIVISIONS: 1905 AND 1900—Continued.

STATE OR TERRITORY.	Census.	Number of establishments.	Capital.	SALARIED OFFICIALS, CLERKS, ETC.		WAGE-EARNERS AND WAGES.		Miscellaneous expenses.	Cost of materials used.	Value of products.	Rank.
				Number.	Salaries.	Average number.	Wages.				
South Central division.....	1905 1900	22 50	\$88,930 149,420	7 12	\$5,056 5,586	33 67	\$17,740 22,800	\$7,213 4,756	\$199,984 203,068	\$279,325 292,454	.....
Kentucky.....	1905 1900	3 9	19,250 18,640	3	2,650	12 17	5,290 5,206	3,016 1,261	47,852 55,447	83,531 77,035	33 32
Tennessee.....	1905 1900	3 12	8,300 36,175	..... 6	..... 2,340	1 20	520 4,193	178 1,113	9,527 49,846	11,498 69,722	38 33
Alabama ²	1900	1	13,670	.....	.....	4	1,277	175.	8,034	12,969	39
Arkansas.....	1905 1900	3 8	11,210 26,503	1 3	1,000 1,446	4 5	2,240 1,734	553 374	27,879 24,538	33,081 32,717	36 36
Oklahoma.....	1905 1900	3 5	15,700 12,762	1	208	11 3	6,080 1,520	1,631 185	65,741 13,749	88,630 18,994	32 37
Texas.....	1905 1900	10 12	34,470 41,670	2 3	1,198 1,800	5 18	3,610 8,870	1,835 1,648	48,985 51,454	62,585 81,017	34 31
Western division.....	1905 1900	572 434	5,085,777 2,362,633	319 248	227,759 122,646	1,503 891	930,961 439,069	483,793 127,037	13,114,707 5,782,842	16,058,763 7,165,806	.....
Montana ⁴	1900	3	6,823	.....	.....	2	1,101	199	6,022	8,418	41
Idaho.....	1905 1900	16 19	43,565 74,693	13 8	1,712 3,395	13 14	9,880 7,076	6,887 1,411	135,696 85,140	171,844 116,056	30 30
Wyoming ³	1905	5	37,983	3	2,520	11	7,034	1,715	94,944	114,354	31
Colorado.....	1905 1900	20 38	593,227 203,947	28 18	31,156 11,415	97 80	58,530 40,323	56,156 13,912	1,081,101 471,003	1,290,144 618,281	18 23
Arizona.....	1905 1900	5 7	179,721 73,480	7 14	7,460 5,686	30 15	21,892 9,410	12,226 6,099	189,644 121,592	267,495 148,458	27 27
Utah.....	1905 1900	49 57	406,480 269,247	23 54	15,770 15,976	98 159	55,145 63,135	46,056 13,788	789,377 550,096	963,811 713,889	30 20
Nevada.....	1905 1900	4 4	57,064 49,766	1 0	240 2,570	10 11	9,030 6,428	2,433 1,099	161,120 127,044	196,651 148,301	29 28
Washington.....	1905 1900	88 60	870,718 304,178	88 35	60,752 27,159	374 146	219,011 80,935	89,007 16,516	2,391,877 932,190	2,992,576 1,190,239	13 17
Oregon.....	1905 1900	98 68	429,031 223,409	36 20	16,545 8,981	130 62	80,876 27,302	38,978 11,852	1,361,088 508,793	1,629,343 639,222	15 22
California.....	1905 1900	281 178	2,107,308 1,157,090	125 90	78,264 47,464	603 402	414,041 203,359	194,024 62,161	6,460,186 2,980,962	7,820,937 3,582,942	8 11
Not distributed by states ¹	1905	6	360,680	15	13,340	137	55,522	36,311	449,674	611,608	.....
Not distributed by states or divisions ¹ ..	1900	5	99,120	4	2,484	41	15,945	848	124,691	171,699	.....

¹ Exclusive of 2 establishments in Mississippi included in the total "not distributed by states or divisions."² No establishments reported in 1905.³ In 1900 exclusive of 2 establishments in Wyoming included in the total "not distributed by states or divisions."⁴ The returns for the following establishments are not shown separately by states: 1905—Butter factories, Montana, 2; Rhode Island, 1; West Virginia, 1. Cheese factories, Connecticut, 1; Delaware, 1; Massachusetts, 2; South Dakota, 1; Virginia, 1; West Virginia, 2. Condensed-milk factories, Colorado, 1; Indiana, 2; Iowa, 1; Maine, 1; New Hampshire, 1; New Jersey, 2; Oregon, 2; Utah, 1; Vermont, 1. 1900—Mississippi, 2; Vermont, 1; Wyoming, 2.

The tendency of farmers in districts containing large cities to sell their milk and cream direct to consumers instead of making it into butter and cheese is further emphasized by the increases and decreases shown for geographic divisions in Table 4. In the Western division, where the local demand for milk and cream is comparatively small, the increase in all items was proportionately great. The gain in the number of establishments was 31.8 per cent, in capital 115.3 per cent, and in value of products 124.1 per cent. There was a loss of less than one-tenth of 1 per cent in the number of establishments in the North Central division, but an increase of 29.6 per cent in the amount of capital and of 31.5 per cent in the value of products.

In the North Atlantic division there was also a decrease in the number of establishments and an increase in the amount of capital and value of products. These two divisions show the effect of the consolidation of the industry. The whole industry sustained a loss in both the South Atlantic and South Central divisions.

Of the 8,926 establishments reported for the United States 6,602, or 74 per cent, were located in six states; these are discussed at greater length below. Of the other states the following are notable for the large gains in the value of products: Colorado, 108.7 per cent; Michigan, 109.5 per cent; California, 118.3 per cent; Washington, 151.4 per cent; Oregon, 154.9 per cent; Missouri, 204.2 per cent; North Dakota,

360.6 per cent. The following states show a decrease in the value of products: Delaware, 21.9 per cent; Texas, 22.8 per cent; Maryland, 25.2 per cent; Connecticut, 25.5 per cent; Massachusetts, 26.8 per cent; Maine, 28.9 per cent; New Jersey, 35.2 per cent; New Hampshire, 41.1 per cent; Virginia, 61.1 per cent; Tennessee, 83.5 per cent. It will be seen that, with few exceptions, those states showing losses are located in a section of the country in which many large cities and towns afford excellent markets for the sale of milk and cream.

The value of the products for the six leading states—New York, Wisconsin, Iowa, Illinois, Minnesota, and Pennsylvania—was \$113,799,670, or 67.7 per cent of the total value of the product for the United States. New York ranks first with products valued at \$31,047,776; Wisconsin second, \$29,994,791; Iowa, third, \$15,028,326; Illinois, fourth, \$13,276,533; Minnesota, fifth, \$12,871,129; Pennsylvania, sixth, \$11,581,115. The first four states have the same rank as in 1900, while Minnesota and Pennsylvania have changed places.

All of the six leading states except Iowa show gains in the principal items of Table 4. In New York the number of establishments decreased from 1,908 to 1,766, a loss of 142. The amount of capital increased

\$1,982,296, or 28 per cent; and the value of products, \$4,489,888, or 16.9 per cent. In Wisconsin the several items increased as follows: Number of establishments, 16.9 per cent; capital, 19.9 per cent; and value of products, 49.1 per cent. Iowa shows decreases in the several items ranging from one of 27.8 per cent in the number of establishments to one of 5.2 per cent in the value of products. In spite of this loss in value the state still retains her position as third in rank, leading Illinois, the next state, by more than \$1,750,000 in the value of products. Illinois lost 23.2 per cent in number of establishments, but gained 19.2 per cent in capital and 3.1 per cent in the value of products. Of these six states Minnesota shows the greatest development, the number of establishments having increased 29.4 per cent; the capital, 45.9 per cent; and the value of products, 51.8 per cent. In Pennsylvania the number of establishments decreased 13.9 per cent. The capital, however, increased 20.3 per cent, and the value of products, 12.5 per cent. None of the other states show products valued as high as \$10,000,000.

Table 5 shows the various products reported in the manufacture of butter, cheese, and condensed milk in the six leading states in 1905.

TABLE 5.—QUANTITY AND VALUE OF BUTTER, CHEESE, AND CONDENSED MILK PRODUCED IN THE SIX STATES OF GREATEST PRODUCTION: 1905.

	NEW YORK.		WISCONSIN.		IOWA.		ILLINOIS.		MINNESOTA.		PENNSYLVANIA.	
	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.
Aggregate.....		\$31,047,776		\$29,994,791		\$15,028,326		\$13,276,533		\$12,871,129		\$11,581,115
Total for butter and its by-products.....		13,412,638		18,657,205		14,689,319		6,159,951		12,517,508		9,298,311
Butter, total.....	58,256,504	12,316,059	89,155,975	18,433,202	71,181,766	14,330,754	27,339,925	5,750,312	62,122,554	12,297,169	35,754,841	8,691,362
Packed solid.....	46,208,732	9,522,572	69,166,599	14,145,383	65,995,782	13,229,840	20,466,655	4,290,377	58,542,838	11,549,845	10,660,820	2,278,140
Prints or rolls.....	12,047,772	2,793,487	19,989,376	4,287,819	5,185,984	1,100,914	6,873,270	1,459,935	3,579,716	747,324	25,094,021	6,413,222
Cream sold.....	5,072,920	428,941	731,721	61,623	1,741,469	142,381	2,192,048	179,071	1,345,769	93,703	1,778,703	161,913
Skimmed milk disposed of.....	149,823,403	172,438	102,630,788	134,826	107,712,914	135,199	100,698,159	110,012	87,583,812	93,672	212,886,742	256,010
Casein.....	6,736,506	310,953	94,128	4,326	6,000	150	1,223,013	60,529			2,455,091	123,623
Other products.....		184,247		23,228		80,835		60,027		32,964		65,403
Total for cheese and its by-products.....		10,875,457		10,534,347		283,674		429,187		314,493		1,024,574
Cheese, total.....	132,836,482	10,812,747	109,423,856	10,488,853	2,829,745	282,078	5,301,211	426,026	3,090,055	307,117	11,453,424	1,007,815
Standard factory.....	102,764,597	8,955,104	71,568,062	6,618,043	2,829,745	282,078	1,778,120	169,392	2,965,984	294,339	10,573,932	943,601
Skimmed.....	1,477,512	64,050	26,348	1,054			1,031,463	38,450			521,409	26,056
Other kinds.....	28,594,373	1,793,593	37,829,446	3,869,756			2,491,628	218,184	124,071	12,778	358,083	38,158
Whey sold.....	22,291,343	13,407	7,565,855	5,353	522,781	57	1,299,800	650			5,147,000	5,522
Whey otherwise disposed of.....	18,387,779	13,403	2,971,035	5,339	1,708,393	1,539			6,459,404	3,681	13,610,333	11,237
Other products.....		35,900		34,802				2,511		3,695		
Total for condensed milk and its by-products.....		6,759,681		798,239	(¹)	(¹)		6,674,734		4,425		1,234,417
Condensed milk, total.....	102,480,355	6,718,380	11,514,222	798,239			93,425,052	6,674,734	79,120	4,425	20,364,700	1,229,602
Sweetened.....	78,149,508	5,433,668	10,389,856	735,504			47,511,291	3,416,927	79,120	4,425	19,160,432	1,177,969
Unsweetened.....	24,330,847	1,284,712	1,124,366	62,735			45,913,761	3,257,807			1,204,268	51,633
Other products.....		41,301										4,815
Products not specified.....				5,000		55,333		12,661		34,703		23,813

¹ The value of condensed milk can not be shown without disclosing individual operations.

Practically the entire value of the products of the combined industries in Iowa and Minnesota—or in the former 97.7 per cent of the total and in the latter 97.3 per cent—as well as a large proportion in

Pennsylvania and Wisconsin was butter. In New York, cheese and condensed milk amounted to nearly 60 per cent of the total, and in Illinois condensed milk alone amounted to a little more than 50 per cent.

Table 6 shows the number of butter, cheese, and condensed milk factories in the various states and groups of states in 1905.

TABLE 6.—*Butter, cheese, and condensed milk—number of factories, by states, territories, and geographic divisions: 1905.*

STATE OR TERRITORY.	Total.	Butter.	Cheese.	Condensed milk.
United States.....	8,926	5,235	3,610	81
North Atlantic division.....	2,826	1,408	1,382	36
Maine.....	47	36	10	1
New Hampshire.....	35	31	3	1
Vermont.....	221	172	48	1
Massachusetts.....	38	36	2	.....
Rhode Island.....	1	1	.....	.....
Connecticut.....	42	41	1	.....
New York.....	1,766	543	1,198	25
New Jersey.....	31	29	.....	.....
Pennsylvania.....	645	519	120	6
South Atlantic division.....	81	77	4	.....
Delaware.....	12	11	1	.....
Maryland.....	55	55	.....	.....
Virginia.....	5	4	1	.....
West Virginia.....	3	1	2	.....
Georgia.....	6	.....	.....	.....
North Central division.....	5,425	3,283	2,111	31
Ohio.....	431	154	274	3
Indiana.....	89	63	24	2
Illinois.....	405	349	41	15
Michigan.....	371	203	162	6
Wisconsin.....	2,360	902	1,454	4
Minnesota.....	771	712	59	.....
Iowa.....	656	607	48	1
Missouri.....	54	37	17	.....
North Dakota.....	60	56	4	.....
South Dakota.....	98	97	1	.....
Nebraska.....	40	36	4	.....
Kansas.....	90	67	23	.....
South Central division.....	22	22	.....	.....
Kentucky.....	3	3	.....	.....
Tennessee.....	3	3	.....	.....
Arkansas.....	3	3	.....	.....
Oklahoma.....	3	3	.....	.....
Texas.....	10	10	.....	.....
Western division.....	572	445	113	14
Montana.....	2	2	.....	.....
Idaho.....	16	12	4	.....
Wyoming.....	5	5	.....	.....
Colorado.....	21	12	.....	1
Arizona.....	5	5	.....	.....
Utah.....	50	39	10	1
Nevada.....	4	4	.....	.....
Washington.....	88	68	16	4
Oregon.....	100	67	31	2
California.....	281	231	44	6

Of the 8,926 establishments reported for the three industries, 5,235 were classed as butter, 3,610 as cheese, and 81 as condensed-milk factories. Of the butter factories, 5,077 manufactured butter only; 142, butter and cheese; 13, butter and condensed

milk; and 3, butter, cheese, and condensed milk. Of the cheese factories, 3,356 manufactured cheese only; 253, cheese and butter; 1, cheese, butter, and condensed milk. Of the condensed-milk factories, 55 reported condensed milk only; 21, condensed milk and butter; 1, condensed milk and cheese; 4, condensed milk, cheese, and butter.

In number of butter factories or creameries Wisconsin ranks first with 902; Minnesota had 712; Iowa, 607; New York, 543; Pennsylvania, 519; Illinois, 349; California, 231; and Michigan, 203. No other state reported as many as 200. Wisconsin, reporting 1,454 establishments, led in the number of cheese factories; New York was next, with 1,198; Ohio, 274; Michigan, 162; Pennsylvania, 120. No other state reported as many as 100. New York had the greatest number of condensed-milk factories, 25; Illinois, 15; California, Michigan, and Pennsylvania, 6 each; Washington and Wisconsin, 4 each; and Ohio, 3. None of the other states reported as many as 3. The North Central division, which is the leading division in value of products, also ranks first in the number of establishments. There were located in that division 3,283, or 62.7 per cent, of the butter factories; 2,111, or 58.5 per cent, of the cheese factories; and 31, or 38.3 per cent, of the condensed-milk factories. The North Atlantic, which is the second division of the states, both in number of establishments and in the value of products, reported 1,408, or 26.9 per cent, of the butter factories; 1,382, or 38.3 per cent, of the cheese factories; 36, or 44.4 per cent, of the condensed-milk factories. In the North Central division the butter factories predominate, there being about half as many again as cheese factories, while in the North Atlantic states the butter and the cheese factories are nearly equal in number. The Western division, a comparatively new territory for these industries, though showing smaller absolute gains, is notable for the large relative increase in the several items. There were reported for this division 445 butter, 113 cheese, and 14 condensed-milk factories.

Imports and exports.—Table 7 shows the quantity and value of imports and exports of butter and of cheese for the years 1885 to 1904, inclusive.

TABLE 7.—IMPORTS AND EXPORTS OF BUTTER AND CHEESE: 1885 TO 1904.¹

YEAR.	IMPORTS.				EXPORTS.			
	Butter.		Cheese.		Butter.		Cheese.	
	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.
1885.....	187,337	\$34,961	6,247,560	\$964,587	21,683,148	\$3,643,646	111,992,990	\$10,444,409
1886.....	178,712	28,421	6,309,124	855,570	18,953,990	2,958,457	91,877,235	7,662,145
1887.....	236,100	38,125	6,592,192	874,261	12,631,171	1,983,698	81,255,994	7,594,633
1888.....	143,215	26,429	8,750,185	1,214,936	10,455,651	1,884,908	88,008,458	8,736,304
1889.....	178,851	24,677	8,207,026	1,135,184	16,604,978	2,568,765	84,999,828	7,889,671
1890.....	75,521	13,679	9,263,573	1,295,506	29,748,042	4,187,489	95,376,053	8,591,042
1891.....	380,728	58,541	8,863,640	1,358,752	15,187,114	2,197,106	82,133,876	7,405,376
1892.....	114,137	16,549	8,305,288	1,238,166	15,047,246	2,445,878	82,100,221	7,677,657
1893.....	73,423	13,479	10,195,924	1,425,927	8,920,107	1,672,690	81,350,923	7,624,648
1894.....	144,346	23,356	8,742,851	1,247,198	11,812,092	2,077,608	73,852,134	7,180,331
1895.....	72,148	12,930	10,276,293	1,450,657	5,598,812	915,533	60,448,421	5,497,539
1896.....	52,067	8,533	10,728,397	1,491,338	19,373,913	2,937,203	36,777,291	3,091,914
1897.....	37,963	6,077	12,319,122	1,668,796	31,345,224	4,493,364	50,944,617	4,636,063
1898.....	31,984	5,474	10,012,188	1,343,173	25,690,025	3,864,765	53,167,280	4,559,324
1899.....	23,700	3,962	11,826,175	1,563,128	20,247,997	3,263,951	38,198,753	3,316,049
1900.....	49,791	9,769	13,455,990	1,761,613	18,266,371	3,143,509	48,419,353	4,943,609
1901.....	93,669	19,441	15,329,099	2,120,293	23,243,526	4,014,905	39,813,517	3,950,999
1902.....	453,978	80,725	17,067,714	2,551,336	16,002,169	2,885,609	27,203,184	2,745,597
1903.....	207,007	51,564	20,671,384	3,183,224	8,896,166	1,604,327	18,987,178	2,250,229
1904.....	154,457	34,764	22,707,103	3,284,811	10,717,824	1,768,184	23,335,172	2,452,239

¹ "Commerce and Navigation of the United States," Bureau of Statistics, Department of Commerce and Labor.

From the beginning of the last century the exports of cheese from the United States increased constantly until 1881, when the maximum was reached. In that year the exports of cheese were valued at \$16,380,248 and amounted approximately to 149,000,000 pounds. Nearly all of the exports were taken by Great Britain, and as the trade increased many of the English houses established branches in this country. The product improved in quality until the cheese made in the United States stood at the head in the English market for imported cheese. Canada, too, furnished a market for a considerable portion of the butter and cheese products of this country.

The amount of butter imported into the United States is insignificant. On the other hand, there has been a steadily increasing demand for foreign varieties of cheese. The imports increased from 6,247,560 pounds in 1885 to 22,707,103 pounds in 1904. In 1904 imports of cheese were almost as great in quantity as the exports, while, the value of the imports exceeded that of the exports by \$832,572.

MILK AND ITS BY-PRODUCTS.

Some general information about the manufacture of butter, cheese, and condensed milk and a statistical discussion based on Table 9 are given in the following paragraphs. A historical and descriptive discussion of the industries will be found in the Twelfth Census of the United States, Part III, Volume IX, pages 438 to 444.

Cream and milk.—Many plants engaged primarily in the sale of milk and cream were included in the number of establishments reported at the census of 1900. As plants of this class were omitted from the census of 1905, a large decrease was shown in the quantity of cream sold. In 1905 the quantity sold

amounted to 28,131,914 pounds, valued at \$2,364,407. This was a decrease of 33,632,638 pounds,¹ or 54.5 per cent. The business of selling milk and cream is growing rapidly, and many establishments located near large towns or cities find it more profitable to sell milk and cream to dealers or direct to the consumers than to sell to the cheese factories or creameries. The average value per pound for cream in 1905 was 8.4 cents.

The average price paid to patrons for milk used in making butter was 81 cents per 100 pounds. The prices ranged from 62 and 65 cents per 100 pounds in Nebraska and North Dakota, to \$1.01 and \$1.02 in New Hampshire and Connecticut. In Wisconsin the price paid was 80 cents; in New York, 83 cents; in Minnesota, 74 cents; in Pennsylvania, 94 cents; in California, 91 cents; in Illinois, 80 cents; in Vermont, 88 cents; in Michigan, 79 cents; in Kansas, 78 cents.

For making cheese an average of 78 cents per 100 pounds was paid. The price in New York was 76 cents; in Wisconsin, 78 cents; in Michigan, 85 cents; in Ohio, 73 cents; in Pennsylvania, 76 cents; in Vermont, 83 cents; in California, 96 cents; in Washington, 90 cents.

The factories making condensed milk paid an average price for milk of \$1.16 per 100 pounds in 1905, as compared with \$1.11 in 1900. Since the best quality of milk is necessary in manufacturing condensed milk, the average price of milk for these factories is higher than for butter or cheese factories. The price in the different states varied from 97 cents per 100 pounds in California to \$1.26 in Washington; other prices were \$1.06 in Michigan, \$1.10 in Pennsylvania and Wisconsin, and \$1.19 in Illinois, New York, and Ohio.

¹ In 1900 the quantity sold was 7,720,569 gallons. Eight pounds of cream are taken as the equivalent of 1 gallon.

Twenty-five condensed-milk factories reported butter as a minor product. This suggests that some condensed milk is made from skimmed milk.

Butter.—In this report butter is classified as “packed solid” and “prints or rolls.” From Table 9 it appears that 531,478,141 pounds were manufactured in 1905. Of this total, 364,432,996 pounds, or 68.6 per cent, was packed solid and 167,045,145 pounds, or 31.4 per cent, was in prints or rolls. This amount does not include 1,971,120 pounds, valued at \$448,729, reported as partial products of other industries.

The form in which butter is packed varies with the different markets. In the North Central division a small portion of the butter for local consumption was put up in prints or rolls, while the great bulk of the product was packed solid for shipment. In Iowa 92.7 per cent was of the packed solid form; in Minnesota, 94.2 per cent; in South Dakota, 98 per cent. In Pennsylvania, where the local demand was greater, 70.1 per cent was of the prints or rolls class. In the Pacific Coast states, where the local trade has become accustomed to prints or rolls, that form predominated. In California prints or rolls formed 88.5 per cent of the total; in Washington, 94 per cent; in Oregon, 83 per cent. Butter put up in the form of prints or rolls requires more labor and costs more to manufacture, but on account of its neat appearance commands better prices. The average price for all butter for the United States was 21.3 cents per pound; for the packed solid kind, 20.4 cents, and for prints or rolls, 23.2 cents.

Nine states reported the manufacture of more than 20,000,000 pounds of butter in 1905. Wisconsin, the leading state, reported 89,155,975 pounds; Iowa, 71,181,766 pounds; Minnesota, 62,122,554 pounds; New York, 58,256,504 pounds; Pennsylvania, 35,754,841 pounds; Illinois, 27,339,925 pounds; Vermont, 27,256,874 pounds; California, 26,837,386 pounds; and Michigan, 21,013,000 pounds. Iowa showed a decrease of 6,051,498 pounds, or 7.8 per cent; Pennsylvania, 1,382,320 pounds, or 3.7 per cent; Illinois, 6,715,387 pounds, or 19.7 per cent. Vermont showed an increase of 4,803,493 pounds, or 21.4 per cent; Wisconsin, 27,342,473 pounds, or 44.2 per cent; New York, 17,562,658 pounds, or 43.2 per cent; Minnesota, 20,948,085 pounds, or 50.9 per cent; California, 13,690,249 pounds, or 104.1 per cent; Michigan, 13,192,288 pounds, or 168.7 per cent.

Skimmed milk.—The total quantity of skimmed milk reported for 1905 was 1,161,414,457 pounds, valued at \$1,368,738. This amount represents all the skimmed milk sold or fed at the factory, that returned to patrons without consideration not being included. The average price per 100 pounds was 11.8 cents. A large part of this product was used in the manufacture of casein. Fresh skimmed milk makes a valuable food for calves and swine.

Casein.—Casein is a by-product of butter manufacture. Skimmed milk is coagulated with acid. After the whey has been drawn off, the acid is washed out of the curd, which is then dried. The product thus obtained may be used as a baker's supply and substitute for eggs, as a substitute for glue in sizing paper, as a binder for enamel paint, as a filler for wood, and for many other purposes.

It has recently been discovered that a horn-like substance could be made by mixing casein with formalin. This substance is called galalith, or milk-stone, and is used as a substitute for ivory, celluloid, marble, hard rubber, and even amber. This substance is smooth to the touch, retains an excellent color, and is proof against fire. In 1905 there were manufactured 11,581,874 pounds of casein, valued at \$554,099, or 4.8 cents per pound. Over one-half of the total for the United States, 6,736,506 pounds, were made in New York. Pennsylvania and Illinois were the only other states that reported as much as 1,000,000 pounds.

Cheese.—Prior to 1900 no attempt was made to classify the cheese manufactured. At the census in that year cheese was reported under two classes—“standard factory” and “other kinds.” In 1905 there was added another class—“skimmed cheese”—which is shown in the detailed tables for the first time. At the time cheese factories began to operate the old English cheddar type was the form best known to the public. The manufacturers followed this style in a general way, only varying in such minor details as to size and color. While all the factories did not make the same size, there was evolved a general type known as the “American standard factory cheese.” For census purposes this kind embraces all types that in a general way resemble the cheddar, such as the full cream, flats, young Americas, and truckle. Under “other kinds” has been classed all cheese that differs in the mode of manufacture from the cheddar type. “Skimmed cheese” includes all cheese made wholly from skimmed milk.

From Table 9 it appears that the cheese manufactured amounted to 317,144,872 pounds. Of this amount, 239,652,634 pounds, or 75.6 per cent, was of the standard factory; 74,032,656 pounds, or 23.3 per cent, of the “other kinds,” and 3,459,582 pounds, or 1.1 per cent, of the skimmed variety. The average price per pound for all kinds was 9 cents; for standard factory, 9.2 cents; for “other kinds,” 8.7 cents; and for skimmed, 4.3 cents.

The distribution of the quantity of cheese indicates a pronounced tendency toward the concentration of this industry into a few states. New York, Wisconsin, Ohio, Michigan, and Pennsylvania reported 287,880,391 pounds, or 90.8 per cent of the total. In 1900 the same states reported 88.4 per cent of the total quantity of cheese produced. New York was the leading state

in the manufacture of cheese, having made 132,836,482 pounds; Wisconsin was second, with 109,423,856 pounds; Ohio, 17,351,773 pounds; Michigan, 16,814,856 pounds; Pennsylvania, 11,453,424 pounds. Other states reporting 1,000,000 pounds or more in 1905 were Vermont, Illinois, California, Minnesota, Iowa, Oregon, and Kansas.

In New York 77.4 per cent of the cheese was of the standard factory variety, which also exceeds "other kinds" in Ohio, Michigan, and Pennsylvania. In Wisconsin the total quantity of cheese was divided as follows: Standard factory, 65.4 per cent; "other kinds" and skimmed cheese, 34.6 per cent. Illinois was the only state in which the quantity of standard factory was exceeded by "other kinds." The cheese product of this state was divided as follows: Standard factory, 1,778,120 pounds; "other kinds," 2,491,628 pounds; skimmed, 1,031,463 pounds.

"Other kinds" embraces several varieties of cheese made in imitation of the most popular kinds of foreign cheese. Limburger and the several varieties of Swiss cheese made up considerably over half of the cheese reported under this head. In Wisconsin all that was so reported was either Swiss or Limburger, the former predominating. Several varieties of French cheese, such as Neufchâtel, Brie, and Camembert, were made in considerable quantities in New York.

Whey.—The only by-product of the cheese factory is whey, which is used principally as a food for animals. From it is obtained sugar of milk, which is manufactured by four factories in this country. As these factories are located in different states, their operations can not be shown separately without disclosing the business of individual establishments. Formerly the only use of sugar of milk was medicinal, but now, because of its digestibility, it is extensively used as an important ingredient of many infant and invalid foods. The total quantity of whey reported for the year 1905 was 166,451,226 pounds, valued at \$111,907. Of this amount, 79,904,034 pounds were sold and 86,547,192 pounds were fed to animals or otherwise used.

Condensed milk.—The relative growth of the condensed-milk industry has been much greater than that of either the butter or the cheese industry. During the past twenty-five years the condensed milk produced has increased in value 1,202 per cent. In 1880 the total production of condensed milk was 13,033,267 pounds, valued at \$1,547,588. In 1890 the product had increased to 37,926,821 pounds, valued at \$3,586,927. In 1900 there were manufactured 186,921,787 pounds, valued at \$11,888,792; and in 1905, 308,485,182 pounds, valued at \$20,149,282. Prior to 1905 no separation of the varieties of condensed milk was made in the Census reports, but in 1905 two varieties were reported under the heads of "sweetened" and "unsweetened." Of the total, 198,355,189 pounds, or 64.3

per cent, were of the sweetened, and 110,129,993 pounds of the unsweetened kind.

Two states, New York and Illinois, with half of the establishments, produced 195,905,407 pounds, or 63.5 per cent, of the total product for all states. New York was the leading state in the quantity manufactured, with a product of 102,480,355 pounds, valued at \$6,718,380; Illinois was second with 93,425,052 pounds, valued at \$6,674,734; Michigan, third, with 27,681,608 pounds, valued at \$1,644,277; Pennsylvania, fourth, with 20,364,700 pounds, valued at \$1,229,602; Wisconsin, fifth, with 11,514,222 pounds, valued at \$798,239; Washington, sixth, with 13,841,906 pounds, valued at \$738,688; California, seventh, with 7,723,021 pounds, valued at \$476,733; and Ohio, eighth, with 1,947,218 pounds, valued at \$139,063. The greatest absolute gains were made in New York, Illinois, and Pennsylvania. The increase in the value of condensed milk in New York was \$1,917,157, or 39.9 per cent; in Illinois, \$2,371,137, or 55.1 per cent; in Pennsylvania, \$973,767, or 380.6 per cent. The greatest relative gain was made in Ohio, the product having increased from \$6,500 to \$139,063, a gain of 2,039.4 per cent. Pennsylvania was also among those states showing large relative gains. Wisconsin showed an increase of \$567,014, or 245.2 per cent; California, \$215,037, or 82.2 per cent; Michigan, \$381,460, or 30.2 per cent; Washington, \$581,688, or 370.5 per cent. The following states also reported condensed-milk factories: Indiana, New Jersey, and Oregon, two each; Colorado, Iowa, Maine, New Hampshire, Utah, and Vermont, one each. The statistics for these states can not be given separately without disclosing the business of individual establishments. The average price per pound for all condensed milk was 6.5 cents; for sweetened, 6.8 cents; and for the unsweetened, 6.1 cents.

The "by-products" or other products have increased in value during the five years from \$33,680 to \$146,388, an increase of \$112,708, or 334.6 per cent.

Average product of factories.—The average product of butter factories in 1905 was 100,334 pounds, while the average product of cheese factories was only 85,245 pounds. Butter factories, as a rule, operate throughout the year, while the cheese factories operate only during the spring and summer months. The states having the highest averages for butter product were: Nebraska, 445,430 pounds; Colorado, 421,167 pounds; Kansas, 246,092 pounds. In the leading butter states, however, the averages per butter factory were much lower. Iowa, the second state in quantity of butter produced, had an average of 117,179 pounds. Wisconsin, the leading state, showed a smaller average, 98,243 pounds. In Minnesota the average was 87,250 pounds; in New York, 100,098 pounds. Pennsylvania shows the lowest average of any of the leading states, it being only 68,471 pounds. Of the leading states in

the production of cheese, New York showed the highest average per cheese factory, 107,760 pounds. Wisconsin, with 256 more establishments than New York, had a much lower average, 74,593 pounds. The average in Michigan was 103,795 pounds, and in Ohio, 61,613 pounds.

TABLE 8.—Average number of wage-earners employed during each month in each industry, with the greatest and least number employed at any one time: 1905.

MONTH.	Average number employed in butter factories.	Average number employed in cheese factories.	Average number employed in condensed-milk factories.
January.....	8,122	900	3,067
February.....	8,156	1,051	3,084
March.....	8,492	1,309	3,291
April.....	9,437	2,358	3,463
May.....	10,337	3,705	3,583
June.....	10,857	4,013	3,794
July.....	10,997	4,059	3,712
August.....	10,819	3,970	3,564
September.....	10,311	3,641	3,390
October.....	9,597	3,386	3,298
November.....	8,850	2,227	3,179
December.....	8,385	1,205	3,075
Greatest number.....	11,604	4,228	4,178
Least number.....	9,278	3,586	2,793

The condensed-milk factories averaged for all states 3,743,758 pounds. The highest averages were in Illinois and Michigan. The former had an average of 6,077,734 pounds and the latter an average of 4,572,832 pounds. In New York, which is the leading state in this industry, the factories are smaller, the average for that state being 4,056,030 pounds. California and Ohio showed the lowest averages, 1,270,504 pounds and 649,073 pounds, respectively.

Table 8 gives the average number of wage-earners employed for each month in each of the combined industries and the greatest and least number employed at any one time.

Both butter and condensed-milk factories vary but little in the number of wage-earners employed. In the former the least number in any month is 73.9 per cent of the greatest, and in the latter 82.6 per cent. In the cheese factories, however, the number employed in January is only 22.2 per cent of the number in July. That the least number in every case is employed in January and the greatest in June or July is due to the conditions which govern the milk supply.

MANUFACTURES.

TABLE 9.—BUTTER, CHEESE, AND CONDENSED MILK—

		United States.	Arizona.	Arkansas.	California.	Colorado.	Connecticut.	Delaware.
1	Number of establishments	8,926	5	3	281	20	41	11
2	Capital:							
3	Total	\$47,255,556	\$179,721	\$11,210	\$2,107,308	\$593,227	\$159,447	\$63,147
4	Land	\$2,557,065	\$20,100	\$850	\$172,726	\$59,930	\$11,300	\$2,200
5	Buildings	\$14,964,816	\$35,073	\$3,000	\$378,157	\$91,271	\$61,603	\$11,600
6	Machinery, tools, and implements	\$17,123,127	\$89,792	\$5,300	\$769,448	\$146,265	\$35,171	\$33,225
7	Cash and sundries	\$12,610,548	\$34,756	\$2,060	\$786,977	\$295,761	\$51,373	\$16,122
8	Proprietors and firm members	6,801	2	3	269	16	17	14
9	Salaried officials, clerks, etc.:							
10	Total number	3,507	7	1	125	28	28	4
11	Total salaries	\$1,376,097	\$7,460	\$1,000	\$78,264	\$31,156	\$15,289	\$2,160
12	Officers of corporations—							
13	Number	600	3	—	27	3	2	—
14	Salaries	\$338,235	\$3,180	—	\$16,712	\$9,000	\$2,120	—
15	General superintendents, managers, clerks, etc.—							
16	Total number	2,907	4	1	98	25	26	4
17	Total salaries	\$1,037,862	\$4,280	\$1,000	\$61,552	\$22,156	\$13,169	\$2,160
18	Men—							
19	Number	2,633	4	1	76	23	25	3
20	Salaries	\$923,851	\$4,280	\$1,000	\$51,762	\$21,320	\$13,145	\$1,740
21	Women—							
22	Number	274	—	—	22	2	1	1
23	Salaries	\$114,011	—	—	\$9,790	\$836	\$24	\$420
24	Wage-earners, including pieceworkers, and total wages:							
25	Greatest number employed at any one time during the year	20,010	48	4	750	122	99	30
26	Least number employed at any one time during the year	15,657	28	4	575	76	95	25
27	Average number	15,557	30	4	603	97	95	25
28	Total wages	\$8,412,937	\$21,892	\$2,240	\$414,041	\$58,530	\$57,155	\$12,088
29	Men 16 years and over—							
30	Average number	14,036	30	4	566	78	95	35
31	Wages	\$7,970,247	\$21,892	\$2,240	\$400,540	\$52,808	\$57,155	\$12,088
32	Women 16 years and over—							
33	Average number	1,405	—	—	36	19	—	—
34	Wages	\$421,933	—	—	\$13,357	\$5,722	—	—
35	Children under 16 years—							
36	Average number	116	—	—	1	—	—	—
37	Wages	\$20,757	—	—	\$144	—	—	—
38	Average number of wage-earners, including pieceworkers, employed during each month:							
39	Men 16 years and over—							
40	January	10,780	24	4	494	71	94	25
41	February	10,988	24	4	492	71	94	24
42	March	11,680	27	4	560	71	93	26
43	April	13,737	43	4	600	77	94	25
44	May	15,960	32	4	613	86	95	25
45	June	16,847	33	4	619	95	97	25
46	July	16,975	34	4	609	92	97	25
47	August	16,657	34	4	601	90	97	25
48	September	15,761	32	4	586	80	96	25
49	October	14,805	27	4	552	70	95	25
50	November	12,867	25	4	531	67	94	25
51	December	11,375	25	4	535	66	94	25
52	Women 16 years and over—							
53	January	1,239	—	—	28	14	—	—
54	February	1,231	—	—	26	15	—	—
55	March	1,324	—	—	34	15	—	—
56	April	1,432	—	—	54	19	—	—
57	May	1,538	—	—	57	19	—	—
58	June	1,652	—	—	58	25	—	—
59	July	1,605	—	—	34	27	—	—
60	August	1,519	—	—	31	25	—	—
61	September	1,453	—	—	30	21	—	—
62	October	1,362	—	—	26	19	—	—
63	November	1,296	—	—	24	14	—	—
64	December	1,209	—	—	30	15	—	—
65	Children under 16 years—							
66	January	70	—	—	1	—	—	—
67	February	72	—	—	1	—	—	—
68	March	88	—	—	1	—	—	—
69	April	89	—	—	1	—	—	—
70	May	127	—	—	1	—	—	—
71	June	165	—	—	1	—	—	—
72	July	183	—	—	3	—	—	—
73	August	177	—	—	2	—	—	—
74	September	128	—	—	1	—	—	—
75	October	114	—	—	—	—	—	—
76	November	93	—	—	—	—	—	—
77	December	81	—	—	—	—	—	—
78	Miscellaneous expenses:							
79	Total	\$4,074,268	\$12,226	\$553	\$194,024	\$56,156	\$24,391	\$9,447
80	Rent of works	\$227,988	\$60	—	\$34,327	\$5,706	\$350	\$956
81	Taxes	\$235,435	\$944	\$57	\$11,636	\$1,015	\$792	\$187
82	Rent of offices, interest, insurance, and all other sundry expenses not hitherto included	\$3,571,821	\$11,222	\$496	\$147,472	\$49,435	\$23,249	\$8,304
83	Contract work	\$39,024	—	—	\$589	—	—	—
84	Materials used:							
85	Aggregate cost	\$142,920,277	\$189,644	\$27,879	\$6,460,186	\$1,081,101	\$670,321	\$159,846
86	In making butter—							
87	Total cost	\$99,144,307	\$157,888	\$27,262	\$5,671,307	\$966,922	\$660,290	\$156,463
88	Milk bought or received from patrons—							
89	Pounds	8,393,098,823	17,083,390	2,574,439	428,060,394	17,587,554	3,405,826	17,633,187
90	Cost	\$67,742,351	\$132,784	\$25,694	\$3,920,483	\$148,966	\$34,761	\$154,338
91	Gathered cream—							
92	Pounds	588,186,471	332,376	7,461	29,504,300	15,555,407	12,477,322	—
93	Cost	\$28,371,040	\$22,069	\$278	\$1,662,817	\$780,579	\$617,164	—
94	Tubs, boxes, color, salt, etc	\$3,030,916	\$3,035	\$1,290	\$88,007	\$37,377	\$8,365	\$2,125
95	In making cheese—							
96	Total cost	\$24,684,891	\$13,422	—	\$344,307	\$78,952	—	—
97	Milk bought or received from patrons—							
98	Pounds	3,026,755,225	1,637,960	—	34,521,455	8,706,277	—	—
99	Cost	\$23,516,725	\$12,882	—	\$332,909	\$74,163	—	—
100	Skimmed milk bought or received from patrons—							
101	Pounds	36,071,335	—	—	—	—	—	—
102	Cost	\$59,398	—	—	—	—	—	—
103	Boxes, salt, etc.	\$1,108,768	\$540	—	\$11,398	\$4,789	—	—

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Georgia.	Idaho.	Illinois.	Indiana.	Iowa.	Kansas.	Ken-tucky.	Maine.	Maryland.	Massachu- setts.	Michigan.	Minnesota.	Missouri.	
6	16	405	87	655	90	3	46	55	36	371	771	54	1
\$26,300	\$43,565	\$5,322,352	\$361,952	\$2,919,092	\$1,992,544	\$19,250	\$385,365	\$175,928	\$210,557	\$1,888,385	\$3,305,120	\$545,639	2
\$7,400	\$3,010	\$247,421	\$20,605	\$169,472	\$146,045	\$250	\$22,378	\$6,355	\$12,925	\$82,075	\$167,142	\$69,219	3
\$7,600	\$15,500	\$1,573,596	\$91,805	\$1,015,381	\$417,842	\$1,500	\$110,981	\$38,958	\$85,101	\$508,777	\$1,191,338	\$109,462	4
\$10,500	\$17,275	\$1,743,344	\$151,094	\$1,128,110	\$719,630	\$4,400	\$76,136	\$85,837	\$38,804	\$738,856	\$1,451,760	\$217,070	5
\$800	\$7,780	\$1,757,991	\$97,848	\$606,129	\$709,027	\$13,100	\$175,870	\$44,778	\$73,727	\$558,677	\$494,880	\$149,888	6
4	9	272	72	361	88	5	21	71	12	259	286	42	7
	13	295	65	802	102	3	24	5	47	167	236	51	8
	\$1,712	\$154,210	\$19,018	\$136,959	\$74,536	\$2,650	\$8,923	\$2,306	\$9,330	\$64,658	\$62,926	\$32,836	9
	1	58	12	110	20		3	1		75	11	5	10
	\$312	\$27,578	\$2,655	\$29,737	\$20,375		\$3,354	\$300		\$16,822	\$11,875	\$6,408	11
	12	267	53	692	82	3	21	4	47	92	230	46	12
	\$1,400	\$126,632	\$16,363	\$107,222	\$54,161	\$2,650	\$5,569	\$2,246	\$9,330	\$47,836	\$51,051	\$26,428	13
	12	241	49	665	56	3	15	4	44	82	220	35	14
	\$1,400	\$114,460	\$15,303	\$95,490	\$43,894	\$2,650	\$3,278	\$2,246	\$8,624	\$45,487	\$47,183	\$20,644	15
		26	1	27	26		6		3	10	10	11	16
		\$12,172	\$1,060	\$11,732	\$10,267		\$2,291		\$706	\$2,349	\$3,868	\$5,784	17
17	17	2,035	212	1,444	502	12	101	92	74	1,125	1,189	248	18
10	16	1,559	187	1,077	362	12	87	82	65	895	1,070	135	19
14	13	1,735	187	1,160	414	12	78	80	64	875	1,041	148	20
\$3,964	\$9,880	\$828,577	\$97,610	\$687,175	\$188,127	\$5,290	\$47,393	\$29,035	\$40,803	\$432,302	\$633,532	\$68,846	21
14	13	1,227	186	1,131	365	12	76	76	63	750	1,038	136	22
\$8,964	\$9,880	\$676,605	\$97,400	\$678,384	\$170,746	\$5,290	\$47,007	\$28,485	\$40,179	\$398,630	\$632,962	\$66,285	23
		465	1	24	39		1	1	1	122	2	10	24
		\$143,327	\$210	\$8,171	\$15,500		\$386	\$330	\$624	\$33,312	\$490	\$2,436	25
		43		5	10			2		3	1	1	26
		\$8,645		\$620	\$1,881			\$220		\$360	\$90	\$125	27
12	12	1,117	168	985	325	12	61	68	59	598	936	119	28
12	12	1,151	171	984	330	12	61	69	59	600	934	118	29
13	12	1,173	172	1,003	341	12	61	71	58	661	946	121	30
17	12	1,247	179	1,089	359	12	71	73	64	748	1,032	128	31
17	14	1,314	194	1,181	404	12	86	78	66	859	1,104	144	32
17	14	1,342											

TABLE 9.—BUTTER, CHEESE, AND CONDENSED MILK—

	United States.	Arizona.	Arkansas.	California.	Colorado.	Connecticut.	Delaware.
Materials used—Continued.							
Aggregate cost—Continued.							
In making condensed milk—							
82 Total cost.....	\$15,618,521	\$4,365		\$323,058			
Milk—							
83 Pounds.....	727,450,502	215,000		17,609,384			
84 Cost.....	\$8,470,669	\$2,365		\$171,093			
Sugar—							
85 Pounds.....	67,810,031			812,926			
86 Cost.....	\$3,315,892			\$43,152			
Cans, labels, etc.							
87 Cost.....	\$3,831,960	\$2,000		\$108,813			
88 Fuel.....	\$2,297,335	\$12,340	\$562	\$76,579	\$7,335	\$6,113	\$3,115
89 Rent of power and heat.....	\$49,060			\$10,633	\$6,922		
90 Mill supplies.....	\$216,722	\$580	\$55	\$8,606	\$635	\$411	\$268
91 All other materials.....	\$373,176	\$1,049		\$775	\$5,701		
92 Freight.....	\$536,265			\$24,921	\$14,634	\$3,507	
Products:							
93 Aggregate value.....	\$168,182,789	\$267,495	\$33,081	\$7,820,937	\$1,290,144	\$814,703	\$197,422
Butter and its by-products—							
94 Total value.....	\$118,205,280	\$222,890	\$33,081	\$6,875,695	\$1,160,999	\$813,503	\$197,422
Butter—							
95 Pounds.....	531,478,141	799,433	127,309	26,837,386	5,054,006	2,903,277	644,823
96 Value.....	\$113,189,453	\$192,702	\$28,336	\$6,640,845	\$1,068,714	\$748,547	\$156,037
Packed solid—							
97 Pounds.....	364,432,996	2,500	109,309	3,070,637	402,841	272,974	27,000
98 Value.....	\$74,483,306	\$600	\$24,534	\$742,929	\$83,720	\$64,739	\$5,160
Prints or rolls—							
99 Pounds.....	167,045,145	796,933	18,000	23,766,749	4,651,165	2,630,303	617,823
100 Value.....	\$38,706,147	\$192,102	\$3,802	\$5,897,916	\$984,994	\$683,808	\$150,877
Cream, sold—							
101 Pounds.....	28,131,914	229,249	60,000	921,334	931,560	695,201	422,800
102 Value.....	\$554,099	\$23,359	\$4,500	\$132,277	\$71,350	\$56,526	\$32,196
Skimmed milk sold, fed, or returned to patrons—							
103 Pounds.....	1,161,414,457			77,886,727	4,073,000	1,801,530	12,010,018
104 Value.....	\$1,368,738			\$63,662	\$5,938	\$2,481	\$6,829
Casein dried from skimmed milk—							
105 Pounds.....	11,581,874			113,256			70,000
106 Value.....	\$554,099			\$4,572			\$2,300
107 All other butter factory products.....	\$728,583	\$6,829	\$245	\$34,339	\$14,997	\$5,949	\$60
Cheese and its by-products—							
108 Total value.....	\$28,838,282	\$17,125		\$432,004	\$106,745		
Cheese—							
109 Pounds.....	317,144,872	161,796		3,601,051	871,673		
110 Value.....	\$28,611,760	\$17,125		\$425,231	\$102,524		
Standard factory (cheddars or flats)—							
111 Pounds.....	239,652,634	161,796		3,427,051	871,673		
112 Value.....	\$22,024,853	\$17,125		\$398,856	\$102,524		
Skimmed cheese, any size or form—							
113 Pounds.....	3,459,582						
114 Value.....	\$148,568						
Other kinds—							
115 Pounds.....	74,032,656			174,000			
116 Value.....	\$6,438,339			\$26,375			
Whey sold—							
117 Pounds.....	79,904,034			837,175	500,000		
118 Value.....	\$44,696			\$393	\$250		
Whey otherwise used—							
119 Pounds.....	86,547,192			8,639,779	2,442,900		
120 Value.....	\$67,211			\$4,337	\$1,491		
121 All other cheese factory products.....	\$114,615			\$2,043	\$2,480		
Condensed milk and its by-products—							
122 Total value.....	\$20,295,670	\$8,100		\$488,733			
Condensed milk—							
123 Pounds.....	308,485,182	162,000		7,723,021			
124 Value.....	\$20,149,282	\$8,100		\$476,733			
Sweetened—							
125 Pounds.....	198,355,189			551,320			
126 Value.....	\$13,478,376			\$38,106			
Unsweetened—							
127 Pounds.....	110,129,993	162,000		7,171,701			
128 Value.....	\$6,670,906	\$8,100		\$438,627			
129 All other condensed-milk factory products.....	\$146,388			\$12,000			
130 All other products not classified.....	\$843,557	\$19,380		\$24,505	\$22,400	\$1,200	
Equipment:							
131 Cream separators, number.....	8,842	12	4	329	16	18	21
132 Branch factories, number.....	659			7	1		1
133 Separating or skimming stations, number.....	1,620	4		67	16		9
Power:							
134 Number of establishments reporting.....	6,429	5	3	247	17	40	11
135 Total horsepower.....	94,626	263	42	3,038	526	299	165
Owned—							
Engines—							
Steam—							
136 Number.....	7,031	8	3	224	20	38	15
137 Horsepower.....	88,677	185	42	2,461	476	291	165
Gas or gasoline—							
138 Number.....	277	1		27		2	
139 Horsepower.....	1,800	3		191		8	
Water wheels—							
140 Number.....	79			5			
141 Horsepower.....	1,380			27			
Water motors—							
142 Number.....	8			3			
143 Horsepower.....	31			7			
Electric motors—							
144 Number.....	158			4	5		
145 Horsepower.....	781			12	50		
146 Other power, horsepower.....	246	75		25			
Rented—							
Electric motors—							
147 Number.....	133			40			
148 Horsepower.....	1,597			304			
149 Other kind, horsepower.....	114			11			
150 Furnished to other establishments, horsepower.....	88				12		

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Georgia.	Idaho.	Illinois.	Indiana.	Iowa.	Kansas.	Ken- tucky.	Maine.	Maryland.	Massachu- setts.	Michigan.	Minnesota.	Missouri.
		\$4,934,731	\$7,439							\$1,450,498	\$4,085	82
		218,758,603	1,066,251							65,234,668	359,396	83
		\$2,608,888	\$7,391							\$693,581	\$2,875	84
		16,825,039	600							8,103,788	20,000	85
		\$841,640	\$30							\$366,510	\$1,120	86
		\$1,484,203	\$18							\$390,407	\$90	87
\$1,477	\$2,084	\$258,258	\$22,751	\$222,942	\$58,782	\$535	\$10,737	\$7,903	\$6,619	\$104,144	\$244,349	\$8,480
\$200	\$1,366	\$1,366	\$1,940	\$2,171	\$5,041	\$87	\$100	\$51		\$1,885	\$2,712	\$4,692
\$80	\$217	\$23,637	\$1,940	\$24,146	\$5,041	\$87	\$570	\$913	\$598	\$11,470	\$23,394	\$903
		\$1,468	\$450	\$34,207	\$255,947		\$2,724	\$6,308			\$5,283	\$500
	\$75	\$42,309	\$2,263	\$33,869	\$96,574	\$50	\$23,637	\$2,172	\$2,242	\$42,197	\$42,585	\$462
\$38,878	\$171,844	\$13,276,533	\$1,290,667	\$15,028,326	\$3,946,349	\$83,531	\$1,229,978	\$518,760	\$876,958	\$8,208,706	\$12,871,129	\$1,313,958
\$35,878	\$158,440	\$6,159,951	\$1,162,383	\$14,689,319	\$3,397,738	\$83,531	\$1,185,168	\$505,151	\$876,958	\$4,782,436	\$12,517,508	\$1,240,037
133,900	671,783	27,339,925	4,742,632	71,181,766	16,488,131	239,061	5,005,907	1,816,433	3,470,323	21,013,000	62,122,554	5,806,724
\$33,100	\$155,566	\$5,750,312	\$1,070,079	\$14,330,754	\$3,355,764	\$70,795	\$1,153,049	\$431,918	\$831,815	\$4,411,196	\$12,297,169	\$1,192,607
97,400	36,222	20,466,655	3,380,012	65,995,782	8,728,216	15,965	2,668,288	326,902	1,105,678	19,272,730	58,542,838	1,866,507
\$23,975	\$7,569	\$4,290,377	\$761,096	\$13,229,840	\$1,731,584	\$4,000	\$605,343	\$72,416	\$254,717	\$4,027,770	\$11,549,845	\$386,379
36,500	635,561	6,873,270	1,362,620	5,185,984	7,759,915	223,096	2,337,619	1,489,531	2,364,645	1,740,270	3,579,716	3,940,217
\$9,125	\$147,997	\$1,459,935	\$308,983	\$1,100,914	\$1,624,180	\$66,795	\$547,706	\$359,502	\$576,598	\$388,426	\$747,324	\$806,228
	14,904	2,192,048	479,153	1,741,469	168,392	60,555	126,084	689,906	408,716	3,139,609	1,345,769	308,551
	\$1,804	\$179,071	\$41,522	\$142,381	\$13,374	\$4,560	\$15,219	\$50,480	\$28,302	\$234,540	\$93,703	\$28,329
1,846,000		100,698,159	29,476,682	107,712,914	19,467,311	438,000	3,182,156	16,321,574	988,981	83,336,032	87,583,812	4,374,260
\$2,778		\$110,012	\$40,793	\$135,199	\$18,752	\$876	\$3,505	\$17,446	\$2,094	\$119,121	\$93,672	\$5,342
		1,223,013		6,000	10,102		158,152	83,712	140,000			
		\$60,529		\$150	\$606		\$9,389	\$4,152	\$7,000			
	\$1,070	\$60,027	\$9,989	\$80,835	\$9,242	\$7,300	\$4,006	\$1,155	\$8,247	\$17,579	\$32,964	\$13,759
	\$13,404	\$429,187	\$111,177	\$283,674	\$105,048		\$39,485			\$1,744,288	\$314,493	\$68,321
	132,420	5,301,211	978,903	2,829,745	1,120,863		361,850			16,814,856	3,090,055	743,447
	\$13,404	\$426,026	\$107,349	\$282,078	\$104,914		\$39,485			\$1,718,076	\$307,117	\$67,669
	132,420	1,778,120	915,278	2,829,745	1,120,863		361,850			16,452,577		

MANUFACTURES.

TABLE 9.—BUTTER, CHEESE, AND CONDENSED MILK—

	Nebraska.	Nevada.	New Hampshire.	New Jersey.	New York.	North Dakota.	Ohio.
1 Number of establishments.....	40	4	34	29	1,766	60	431
2 Capital:							
3 Total.....	\$1,861,196	\$57,064	\$163,256	\$135,481	\$9,066,426	\$202,178	\$1,428,224
4 Land.....	\$68,568	\$1,370	\$8,900	\$7,120	\$446,046	\$8,362	\$110,120
5 Buildings.....	\$432,809	\$27,807	\$69,050	\$35,481	\$3,398,227	\$91,452	\$522,983
6 Machinery, tools, and implements.....	\$456,503	\$16,100	\$54,105	\$64,260	\$3,288,104	\$88,038	\$542,247
7 Cash and sundries.....	\$903,316	\$11,787	\$31,201	\$28,620	\$1,934,049	\$14,326	\$252,874
8 Proprietors and firm members.....	24		20	26	1,721	18	318
9 Salaried officials, clerks, etc.:—							
10 Total number.....	113	1	20	5	215	25	61
11 Total salaries.....	\$102,053	\$240	\$6,188	\$1,170	\$192,400	\$1,575	\$18,677
12 Officers of corporations—							
13 Number.....	14		3		40		3
14 Salaries.....	\$30,300		\$620		\$42,106		\$400
15 General superintendents, managers, clerks, etc.—							
16 Total number.....	99	1	17	5	175	25	58
17 Total salaries.....	\$71,753	\$240	\$5,568	\$1,170	\$150,294	\$1,575	\$18,277
18 Men—							
19 Number.....	74	1	14	5	161	25	54
20 Salaries.....	\$58,051	\$240	\$4,458	\$1,170	\$142,574	\$1,575	\$16,932
21 Women—							
22 Number.....	25		3		14		4
23 Salaries.....	\$13,702		\$1,110		\$7,720		\$1,345
24 Wage-earners, including pieceworkers, and total wages:							
25 Greatest number employed at any one time during the year.....	367	10	81	50	3,983	81	720
26 Least number employed at any one time during the year.....	205	10	64	44	2,974	63	612
27 Average number.....	253	10	63	43	2,858	55	488
28 Total wages.....	\$136,687	\$9,030	\$36,452	\$21,075	\$1,485,072	\$38,246	\$291,947
29 Men 16 years and over—							
30 Average number.....	220	10	61	41	2,516	55	468
31 Wages.....	\$124,463	\$9,030	\$35,552	\$20,590	\$1,383,107	\$38,246	\$286,903
32 Women 16 years and over—							
33 Average number.....	33		2	1	346		14
34 Wages.....	\$12,224		\$900	\$360	\$101,488		\$4,190
35 Children under 16 years—							
36 Average number.....				1	6		6
37 Wages.....				\$125	\$477		\$854
38 Average number of wage-earners, including pieceworkers, employed during each month:							
39 Men 16 years and over—							
40 January.....	178	10	57	41	1,496	37	264
41 February.....	174	10	58	41	1,631	39	270
42 March.....	185	10	59	38	1,872	39	291
43 April.....	220	10	61	44	2,518	46	404
44 May.....	243	10	65	43	3,093	61	577
45 June.....	287	10	66	44	3,336	73	626
46 July.....	282	10	66	43	3,369	80	657
47 August.....	277	10	64	43	3,258	76	649
48 September.....	242	10	64	41	2,994	67	608
49 October.....	204	10	59	39	2,834	55	553
50 November.....	177	10	57	39	2,142	45	400
51 December.....	171	10	56	39	1,649	42	317
52 Women 16 years and over—							
53 January.....	23		2	1	320		3
54 February.....	23		2	1	309		3
55 March.....	23		2	1	338		3
56 April.....	24		2	1	362		4
57 May.....	28		2	1	377		7
58 June.....	51		2	1	402		19
59 July.....	57		2	1	397		23
60 August.....	53		2	1	385		23
61 September.....	40		2	1	345		25
62 October.....	31		2	1	329		21
63 November.....	21		2	1	307		19
64 December.....	22		2	1	281		18
65 Children under 16 years—							
66 January.....					5		
67 February.....					5		
68 March.....					5		
69 April.....					5		
70 May.....					4		2
71 June.....					7		13
72 July.....					7		17
73 August.....					7		15
74 September.....					7		9
75 October.....					8		6
76 November.....					7		5
77 December.....					5		5
78 Miscellaneous expenses:							
79 Total.....	\$185,084	\$2,433	\$21,978	\$10,909	\$576,240	\$10,744	\$73,123
80 Rent of works.....	\$5,652		\$463	\$1,124	\$30,139	\$1,263	\$9,695
81 Taxes.....	\$7,446	\$370	\$1,126	\$582	\$42,068	\$971	\$8,154
82 Rent of offices, insurance, interest, and all sundry expenses not hitherto included.	\$171,986	\$2,063	\$20,389	\$9,203	\$500,004	\$8,510	\$54,824
83 Contract work.....					\$4,029		\$450
84 Materials used:							
85 Aggregate cost.....	\$2,671,978	\$161,120	\$730,380	\$317,752	\$26,792,872	\$478,274	\$3,729,197
86 In making butter—							
87 Total cost.....	\$2,581,152	\$154,905	\$696,407	\$310,625	\$11,277,856	\$459,599	\$2,201,657
88 Milk bought or received from patrons—							
89 Pounds.....	156,377,090	15,768,403	45,983,092	31,059,303	1,272,356,745	35,936,537	224,963,996
90 Cost.....	\$971,483	\$140,572	\$465,443	\$302,922	\$10,590,004	\$233,986	\$1,816,730
91 Gathered cream—							
92 Pounds.....	32,312,868	231,900	4,298,756	4,950	6,176,069	4,795,099	6,582,108
93 Cost.....	\$1,497,411	\$12,186	\$206,566	\$190	\$292,200	\$202,805	\$337,790
94 Tubs, boxes, color, salt, etc.....	\$112,258	\$2,147	\$24,398	\$7,513	\$395,652	\$22,808	\$47,137
95 In making cheese—							
96 Total cost.....	\$13,741	\$3,057	\$20,101		\$9,504,802	\$3,832	\$1,350,605
97 Milk bought or received from patrons—							
98 Pounds.....	1,601,200	300,000	2,102,900		1,189,565,135	528,979	175,807,869
99 Cost.....	\$12,951	\$3,000	\$19,123		\$9,050,012	\$3,633	\$1,288,856
100 Skimmed milk bought or received from patrons—							
101 Pounds.....					6,213,777		4,717,950
102 Cost.....					\$9,261		\$6,824
103 Boxes, salt, etc.....	\$790	\$57	\$978		\$445,529	\$199	\$54,925

¹ Includes establishments distributed as follows: Colorado, 1; Connecticut, 1; Delaware, 1; Indiana, 2; Iowa, 1; Maine, 1; Massachusetts, 2; Montana, 2; New Hampshire, 1; New Jersey, 2; Oregon, 2; Rhode Island, 1; South Dakota, 1; Utah, 1; Vermont, 1; Virginia, 1; West Virginia, 3.

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Oklahoma.	Oregon.	Pennsylvania.	South Dakota.	Tennessee.	Texas.	Utah.	Vermont.	Virginia.	Washington.	Wisconsin.	Wyoming.	All other states. ¹	
3	98	645	97	3	10	49	220	4	88	2,360	5	24	1
\$15,700	\$429,031	\$3,649,116	\$484,139	\$8,300	\$34,470	\$406,480	\$1,053,369	\$10,120	\$870,718	\$5,897,418	\$37,983	\$1,134,778	2
\$800	\$24,720	\$209,340	\$18,938	\$270	\$5,070	\$11,850	\$42,100	\$1,800	\$29,988	\$312,905	\$600	\$26,815	3
\$2,000	\$70,553	\$1,070,788	\$158,808	\$2,000	\$7,150	\$77,705	\$341,896	\$3,400	\$103,886	\$2,544,976	\$5,400	\$249,900	4
\$3,650	\$176,608	\$1,365,535	\$213,285	\$3,550	\$16,780	\$125,778	\$353,781	\$3,900	\$316,741	\$2,157,465	\$12,531	\$396,549	5
\$4,250	\$157,150	\$1,003,453	\$93,108	\$2,500	\$5,470	\$191,147	\$315,592	\$1,020	\$420,103	\$882,072	\$19,452	\$461,514	6
4	91	623	32	11	12	38	106	6	60	1,858	3	15	7
1	36	311	126	-----	2	23	133	-----	68	323	3	38	8
\$208	\$16,545	\$88,566	\$26,293	-----	\$1,198	\$15,770	\$29,951	-----	\$60,752	\$68,926	\$2,520	\$37,672	9
-----	14	32	4	-----	-----	3	7	-----	16	164	-----	4	10
-----	\$6,949	\$28,549	\$5,970	-----	-----	\$4,800	\$5,355	-----	\$25,830	\$31,168	-----	\$6,000	11
1	22	279	122	-----	2	20	126	-----	52	159	3	34	12
\$208	\$9,596	\$60,017	\$20,323	-----	\$1,198	\$10,970	\$24,596	-----	\$34,922	\$37,758	\$2,520	\$31,672	13
-----	15	271	114	-----	1	19	117	-----	41	137	2	24	14
-----	\$6,256	\$57,313	\$10,752	-----	\$1,000	\$10,520	\$22,226	-----	\$29,622	\$32,736	\$1,920	\$26,600	15
1	7	8	8	-----	1	1	9	-----	11	22	1	10	16
\$208	\$3,340	\$2,704	\$3,571	-----	\$198	\$450	\$2,370	-----	\$5,300	\$5,022	\$800	\$5,072	17
15	174	1,532	246	3	7	121	521	4	469	3,047	14	444	18
8	143	1,246	193	3	3	100	388	4	362	2,607	11	256	19
11	130	1,218	192	1	5	98	419	3	374	2,298	11	342	20
\$6,080	\$80,870	\$556,310	\$125,340	\$520	\$3,610	\$55,145	\$223,254	\$1,236	\$219,011	\$1,328,076	\$7,034	\$149,486	21
10	120	1,131	190	1	5	91	411	3	325	2,251	10	226	22
\$5,880	\$79,892	\$534,695	\$124,541	\$520	\$3,610	\$53,818	\$221,889	\$1,236	\$203,556	\$1,316,068	\$6,494	\$117,667	23
1	4	81	2	-----	-----	5	8	-----	39	38	1	107	24
\$300	\$984	\$20,291	\$819	-----	-----	\$930	\$1,365	-----	\$13,130	\$10,163	\$540	\$30,494	25
-----	-----	6	-----	-----	-----	2	-----	-----	10	9	-----	11	26
-----	-----	\$1,324	-----	-----	-----	\$397	-----	-----	\$2,325	\$1,845	-----	\$1,325	27
7	96	903	167	1	3	87	330	3	301	1,424	8	183	28
6	98	909	168	1	2	87	332	2	304	1,434	9	191	29
7	109	946	174	1	4	86	353	3	316	1,536	10	216	30
12	133	1,114	185	1	4	88	404	3	348	2,038	11	219	31
14	148	1,272	212	1	7	90	480	3	376	2,486	11	240	32
14	151	1,306	226	1	6	93	496	3</					

TABLE 9.—BUTTER, CHEESE, AND CONDENSED MILK—

	Nebraska.	Nevada.	New Hampshire.	New Jersey.	New York.	North Dakota.	Ohio.
Materials used—Continued.							
Aggregate cost—Continued.							
In making condensed milk—							
82 Total cost.....					\$5,550,298		\$90,282
83 Milk—							
84 Pounds.....					254,444,530		4,930,869
85 Cost.....					\$3,039,333		\$58,583
86 Sugar—							
87 Pounds.....					28,521,923		40,000
88 Cost.....					\$1,395,480		\$2,000
89 Cans, labels, etc.					\$1,115,485		\$29,699
90 Fuel.....	\$18,116	\$2,990	\$11,356	\$6,142	\$401,727	\$11,033	\$58,891
91 Rent of power and heat.....	\$5,998		\$55		\$1,644	\$485	\$239
92 Mill supplies.....	\$2,282	\$131	\$1,103	\$557	\$30,084	\$811	\$5,224
93 All other materials.....							\$20,332
94 Freight.....	\$50,689	\$37	\$1,358	\$428	\$20,461	\$2,514	\$1,967
Products:							
95 Aggregate value.....	\$3,326,110	\$196,651	\$864,109	\$395,499	\$31,047,776	\$562,481	\$4,593,222
96 Butter and its by-products—							
97 Total value.....	\$3,288,944	\$192,391	\$841,545	\$385,189	\$13,412,638	\$556,910	\$2,738,939
98 Butter—							
99 Pounds.....	16,035,468	758,184	3,098,889	1,178,846	58,256,504	3,013,151	11,591,981
100 Value.....	\$3,164,300	\$187,051	\$751,807	\$279,004	\$12,316,059	\$556,408	\$2,534,581
101 Packed solid—							
102 Pounds.....	10,573,016	102,537	1,989,873	456,607	46,208,732	2,657,328	7,233,289
103 Value.....	\$2,074,694	\$25,639	\$479,329	\$103,048	\$9,522,572	\$485,758	\$1,527,514
104 Prints or rolls—							
105 Pounds.....	5,462,452	655,647	1,109,016	722,239	12,047,772	355,823	4,358,692
106 Value.....	\$1,089,606	\$101,412	\$272,478	\$175,956	\$2,793,487	\$70,650	\$1,007,067
107 Cream sold—							
108 Pounds.....	1,077,068		563,651	982,587	5,072,920	120	1,843,868
109 Value.....	\$80,497		\$58,830	\$82,329	\$428,941	\$12	\$116,253
110 Skimmed milk sold, fed, or returned to patrons—							
111 Pounds.....	5,232,950	8,830,000	15,490,574	18,143,732	149,823,403		42,713,501
112 Value.....	\$8,917	\$5,340	\$18,281	\$17,980	\$172,438		\$53,507
113 Casein dried from skimmed milk—							
114 Pounds.....			199,662	27,375	6,736,506		171,864
115 Value.....			\$11,526	\$1,095	\$310,953		\$8,735
116 All other butter factory products.....	\$35,230		\$1,101	\$4,781	\$184,247	\$490	\$25,863
Cheese and its by-products—							
117 Total value.....	\$17,166	\$4,260	\$22,564	\$134	\$10,875,457	\$5,571	\$1,695,070
118 Cheese—							
119 Pounds.....	158,470	33,000	207,149	6,700	132,836,482	51,894	17,351,773
120 Value.....	\$17,166	\$4,130	\$22,564	\$134	\$10,812,747	\$5,571	\$1,655,963
121 Standard factory (cheddars or flats)—							
122 Pounds.....	158,470	33,000	207,149		102,764,597	51,894	13,219,415
123 Value.....	\$17,166	\$4,130	\$22,564		\$8,955,104	\$5,571	\$1,231,779
124 Skimmed cheese, any size or form—							
125 Pounds.....				6,700	1,477,512		343,600
126 Value.....				\$134	\$64,050		\$16,194
127 Other kinds—							
128 Pounds.....					28,594,373		3,788,758
129 Value.....					\$1,793,593		\$407,990
130 Whey sold—							
131 Pounds.....					22,291,343		8,734,667
132 Value.....					\$13,407		\$4,403
133 Whey otherwise used—							
134 Pounds.....		260,000			18,387,779		6,768,204
135 Value.....		\$130			\$13,403		\$3,959
136 All other cheese factory products.....					\$35,900		\$30,745
137 Condensed milk and its by-products—							
138 Total value.....					\$6,759,681		\$139,063
139 Condensed milk—							
140 Pounds.....					102,480,355		1,947,218
141 Value.....					\$6,718,380		\$139,063
142 Sweetened—							
143 Pounds.....					78,149,508		266,250
144 Value.....					\$5,433,668		\$15,975
145 Unsweetened—							
146 Pounds.....					24,330,847		1,680,968
147 Value.....					\$1,284,712		\$123,088
148 All other condensed-milk factory products.....					\$41,301		
149 All other products not classified.....	\$20,000			\$10,176			\$20,150
Equipment:							
150 Cream separators, number.....	65	11	42	37	1,219	32	295
151 Branch factories, number.....	12			3	110		40
152 Separating or skimming stations, number.....	5		9	5	270	7	64
Power:							
153 Number of establishments reporting.....	38	4	31	29	995	50	262
154 Total horsepower.....	901	67	514	353	14,503	618	3,531
155 Owned—							
156 Engines—							
157 Steam—							
158 Number.....	39	4	32	32	1,134	45	279
159 Horsepower.....	810	67	447	353	13,386	549	3,355
160 Gas or gasoline—							
161 Number.....	6				35	6	16
162 Horsepower.....	27				207	53	55
163 Water wheels—							
164 Number.....			2		27		
165 Horsepower.....			63		665		
166 Water motors—							
167 Number.....					1		
168 Horsepower.....					1		
169 Electric motors—							
170 Number.....	2				26		33
171 Horsepower.....	40				181		69
172 Other power, horsepower.....					8		42
173 Rented—							
174 Electric motors—							
175 Number.....			1		5	1	4
176 Horsepower.....			3		55	10	10
177 Other kind, horsepower.....	24		1			6	
178 Furnished to other establishments, horsepower.....							12

Oklahoma.	Oregon.	Pennsylvania.	South Dakota.	Tennessee.	Texas.	Utah.	Vermont.	Virginia.	Washington.	Wisconsin.	Wyoming.	All other states.	
		\$804,349				\$3,450			\$527,147	\$606,557		\$1,312,262	82
		45,841,059				319,500			26,818,121	28,195,009		63,658,112	83
		\$502,057				\$2,875			\$338,120	\$310,140		\$733,368	84
		4,663,066								4,031,933		4,790,753	85
		\$222,869								\$197,545		\$245,546	86
		\$79,423				\$575			\$189,027	\$98,872		\$333,348	87
\$1,326	\$12,040	\$137,161	\$37,826	\$235	\$1,065	\$10,851	\$58,961	\$326	\$28,195	\$395,870	\$1,020	\$47,099	88
\$180	\$1,249	\$2,817			\$290	\$175	\$368		\$2,474	\$1,434	\$820	\$100	89
\$110	\$1,145	\$21,866	\$3,263	\$37	\$137	\$934	\$6,814	\$24	\$2,665	\$32,186	\$135	\$3,663	90
	\$9,841	\$12,665	\$1,183						\$14,743				91
\$2,000	\$14,430	\$29,586	\$6,884	\$2		\$304	\$23,876		\$4,137	\$31,414	\$350	\$6,331	92
\$88,630	\$1,629,343	\$11,581,115	\$2,182,653	\$11,498	\$62,585	\$963,811	\$6,416,434	\$20,209	\$2,992,576	\$29,994,791	\$114,354	\$1,859,543	93
\$88,630	\$1,324,517	\$9,298,311	\$2,176,732	\$11,498	\$62,585	\$794,319	\$5,982,755	\$20,209	\$2,098,902	\$18,657,205	\$106,173	\$68,800	94
416,100	5,080,599	35,754,841	11,058,460	41,889	266,806	3,588,547	27,256,874	81,803	7,722,911	19,155,975	500,515	223,425	95
\$38,630	\$1,266,891	\$8,091,362	\$2,161,323	\$9,722	\$61,595	\$781,689	\$5,844,144	\$18,946	\$1,968,682	\$18,433,202	\$101,722	\$53,530	96
207,000	855,962	10,660,820	10,835,596	27,789	86,908	164,636	16,210,831	18,318	466,999	69,166,599	119,200	2,500	97
\$41,630	\$193,691	\$2,278,140	\$2,116,900	\$6,197	\$18,875	\$33,100	\$3,409,092	\$3,837	\$126,974	\$14,145,383	\$23,840	\$500	98
209,100	4,224,637	25,094,021	222,864	14,100	179,898	3,421,911	11,046,043	63,485	7,255,912	19,989,376	381,315	220,925	99
\$47,000	\$1,073,200	\$6,413,222	\$44,423	\$3,525	\$42,720	\$748,589	\$2,435,052	\$15,109	\$1,841,708	\$4,287,819	\$77,882	\$53,030	100
	477,218	1,778,703	2,140	14,400		55,046	571,402	3,300	830,662	731,721	44,272	147,536	101
	\$40,798	\$161,913	\$215	\$1,080		\$4,470	\$65,522	\$165	\$89,095	\$61,623	\$4,151	\$15,020	102
	1,910,699	212,886,742	4,491,814	348,480		4,902,980	40,621,876	80,000	2,109,762	102,630,788			103
	\$2,077	\$256,010	\$7,903	\$696		\$5,705	\$53,469	\$100	\$2,989	\$134,826			104
		2,455,091					93,513			94,128			105
		\$123,623					\$5,143			\$4,324			106
	\$14,751	\$65,403	\$7,291		\$990	\$2,455	\$14,477	\$998	\$38,136	\$23,228	\$300	\$250	107
	\$250,340	\$1,024,574				\$162,200	\$433,679		\$103,344	\$10,534,347	\$8,181	\$36,444	108
	2,255,592	11,453,424				1,629,730	4,343,160		921,383	109,423,856	84,600	379,789	109
	\$249,376	\$1,007,815				\$161,721	\$427,586		\$102,601	\$10,488,853	\$8,181	\$36,354	110
	2,214,067	10,573,932				1,629,730	4,271,160						

TABLE 10.—BUTTER—DETAILED SUMMARY,

	United States.	Arizona.	Arkansas.	California.	Colorado.	Connecticut.	Delaware.
1 Number of establishments.....	5,235	5	3	231	12	41	11
2 Capital:							
3 Total.....	\$30,080,419	\$179,721	\$11,210	\$1,525,634	\$550,403	\$159,447	\$63,147
4 Land.....	\$1,762,633	\$20,100	\$850	\$150,306	\$57,630	\$11,300	\$2,200
5 Buildings.....	\$9,158,088	\$35,073	\$3,000	\$315,142	\$78,771	\$61,603	\$11,600
6 Machinery, tools, and implements.....	\$11,800,637	\$89,792	\$5,300	\$620,930	\$135,465	\$35,171	\$33,225
7 Cash and sundries.....	\$7,359,061	\$34,756	\$2,060	\$439,256	\$278,537	\$51,373	\$16,122
8 Proprietors and firm members.....	3,497	2	3	218	8	17	14
9 Salaried officials, clerks, etc.:							
10 Total number.....	3,017	7	1	113	28	28	1
11 Total salaries.....	\$976,069	\$7,460	\$1,000	\$65,779	\$31,156	\$15,289	\$2,160
12 Officers of corporations—							
13 Number.....	516	3	—	25	3	12	—
14 Salaries.....	\$260,762	\$3,180	—	\$14,312	\$9,000	\$2,120	—
15 General superintendents, managers, clerks, etc.—							
16 Total number.....	2,501	4	1	88	25	26	4
17 Total salaries.....	\$715,307	\$4,280	\$1,000	\$51,467	\$22,156	\$13,169	\$2,160
18 Men—							
19 Number.....	2,283	4	1	69	23	25	3
20 Salaries.....	\$628,130	\$4,280	\$1,000	\$42,897	\$21,320	\$13,145	\$1,740
21 Women—							
22 Number.....	218	—	—	19	2	1	1
23 Salaries.....	\$87,177	—	—	\$8,570	\$836	\$24	\$420
24 Wage-earners, including pieceworkers, and total wages:							
25 Greatest number employed at any one time during the year.....	11,604	48	4	527	109	99	30
26 Least number employed at any one time during the year.....	9,278	28	4	443	66	95	25
27 Average number.....	9,530	30	4	446	86	95	25
28 Total wages.....	\$5,405,872	\$21,892	\$2,240	\$321,451	\$51,654	\$57,155	\$12,038
29 Men 16 years and over—							
30 Average number.....	9,277	30	4	436	67	95	25
31 Wages.....	\$5,325,662	\$21,892	\$2,240	\$317,749	\$45,932	\$57,155	\$12,038
32 Women 16 years and over—							
33 Average number.....	218	—	—	10	19	—	—
34 Wages.....	\$73,536	—	—	\$3,702	\$5,722	—	—
35 Children under 16 years—							
36 Average number.....	35	—	—	—	—	—	—
37 Wages.....	\$6,674	—	—	—	—	—	—
38 Average number of wage-earners, including pieceworkers, employed during each month:							
39 Men 16 years and over—							
40 January.....	7,939	24	4	377	60	94	25
41 February.....	7,972	24	4	384	60	94	24
42 March.....	8,287	27	4	427	60	93	26
43 April.....	9,225	43	4	458	65	94	25
44 May.....	10,054	32	4	470	73	95	25
45 June.....	10,528	33	4	479	82	97	25
46 July.....	10,642	34	4	473	81	97	25
47 August.....	10,493	24	4	461	79	97	25
48 September.....	10,024	32	4	454	69	96	25
49 October.....	9,337	27	4	430	60	95	25
50 November.....	8,633	25	4	412	58	94	25
51 December.....	8,190	25	4	407	57	94	25
52 Women 16 years and over—							
53 January.....	162	—	—	10	14	—	—
54 February.....	163	—	—	10	15	—	—
55 March.....	173	—	—	10	15	—	—
56 April.....	188	—	—	10	19	—	—
57 May.....	239	—	—	10	19	—	—
58 June.....	284	—	—	10	25	—	—
59 July.....	306	—	—	10	27	—	—
60 August.....	276	—	—	10	25	—	—
61 September.....	245	—	—	10	21	—	—
62 October.....	219	—	—	10	19	—	—
63 November.....	188	—	—	10	14	—	—
64 December.....	173	—	—	10	15	—	—
65 Children under 16 years—							
66 January.....	21	—	—	—	—	—	—
67 February.....	21	—	—	—	—	—	—
68 March.....	32	—	—	—	—	—	—
69 April.....	24	—	—	—	—	—	—
70 May.....	44	—	—	—	—	—	—
71 June.....	45	—	—	—	—	—	—
72 July.....	49	—	—	—	—	—	—
73 August.....	50	—	—	—	—	—	—
74 September.....	42	—	—	—	—	—	—
75 October.....	41	—	—	—	—	—	—
76 November.....	29	—	—	—	—	—	—
77 December.....	22	—	—	—	—	—	—
78 Miscellaneous expenses:							
79 Total.....	\$2,811,247	\$12,226	\$553	\$163,942	\$54,635	\$24,391	\$9,447
80 Rent of works.....	\$181,228	\$60	—	\$32,735	\$5,586	\$350	\$956
81 Taxes.....	\$158,510	\$944	\$57	\$8,962	\$834	\$792	\$187
82 Rent of offices, insurance, interest and all sundry expenses not hitherto included.....	\$2,435,593	\$11,222	\$496	\$121,656	\$48,215	\$23,249	\$8,304
83 Contract work.....	\$35,916	—	—	\$589	—	—	—
84 Materials used:							
85 Aggregate cost.....	\$101,290,711	\$189,644	\$27,879	\$5,760,823	\$1,013,639	\$670,321	\$159,846
86 In making butter—							
87 Total cost.....	\$97,920,970	\$157,888	\$27,262	\$5,650,462	\$966,922	\$660,290	\$156,463
88 Milk bought or received from patrons—							
89 Pounds.....	8,255,672,291	17,083,390	2,574,439	427,067,166	17,587,554	3,405,826	17,633,187
90 Cost.....	\$66,633,063	\$132,784	\$25,694	\$3,904,125	\$148,966	\$34,761	\$154,338
91 Gathered cream—							
92 Pounds.....	587,135,199	332,376	7,461	29,435,344	15,555,407	12,477,322	—
93 Cost.....	\$28,319,199	\$22,069	\$278	\$1,659,258	\$780,579	\$617,164	—
94 Tubs, boxes, color, salt, etc.....	\$2,968,708	\$3,035	\$1,290	\$87,079	\$37,377	\$8,365	\$2,125
95 In making cheese—							
96 Total cost.....	\$568,276	\$13,422	—	\$10,914	\$12,756	—	—
97 Milk bought or received from patrons—							
98 Pounds.....	68,065,813	1,637,960	—	1,267,240	1,350,000	—	—
99 Cost.....	\$526,889	\$12,882	—	\$10,675	\$12,150	—	—
100 Skimmed milk bought or received from patrons—							
101 Pounds.....	6,438,383	—	—	—	—	—	—
102 Cost.....	\$11,345	—	—	—	—	—	—
103 Boxes, salt, etc.....	\$30,042	\$540	—	\$239	\$606	—	—

BUTTER, CHEESE, AND CONDENSED MILK.

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BY STATES AND TERRITORIES: 1905.

Georgia.	Idaho.	Illinois.	Indiana.	Iowa.	Kansas.	Kentucky.	Maine.	Maryland.	Massachu- setts.	Michigan.	Minnesota.	Missouri.	
6	12	349	63	607	67	3	36	55	36	203	712	37	1
\$26,300	\$41,165	\$1,545,506	\$319,732	\$2,806,725	\$1,954,550	\$19,250	\$366,401	\$175,928	\$210,557	\$980,720	\$3,191,859	\$519,771	2
\$7,400	\$2,885	\$96,861	\$17,635	\$159,277	\$144,545	\$250	\$22,128	\$6,355	\$12,925	\$45,265	\$162,277	\$67,054	3
\$7,600	\$14,550	\$541,030	\$77,585	\$973,018	\$398,885	\$1,500	\$103,481	\$38,958	\$85,101	\$302,613	\$1,139,088	\$96,662	4
\$10,500	\$15,950	\$661,686	\$136,384	\$1,097,625	\$710,350	\$4,400	\$69,311	\$85,837	\$38,804	\$453,317	\$1,414,675	\$210,320	5
\$800	\$7,780	\$245,929	\$88,128	\$576,805	\$700,770	\$13,100	\$171,481	\$44,778	\$73,727	\$179,525	\$475,819	\$145,735	6
4	4	233	51	313	57	6	15	71	12	91	254	26	7
	13	211	60	777	100	3	23				222	49	8
	\$1,712	\$53,474	\$17,298	\$134,881	\$73,851	\$2,650	\$8,911	\$2,306	\$9,330	\$47,001	\$61,065	\$32,648	9
	1	19	12	97	19		3	1		69	5	5	10
	\$312	\$7,434	\$2,655	\$29,110	\$20,350		\$3,354	\$60		\$14,256	\$11,175	\$6,408	11
	12	192	48	680	81	3	20	4	47	70	217	44	12
	\$1,400	\$46,040	\$14,643	\$105,771	\$53,501	\$2,650	\$5,557	\$2,246	\$9,330	\$32,745	\$49,890	\$26,240	13
	12	181	46	653	55	3	14	4	44	62	207	33	14
	\$1,400	\$40,752	\$14,033	\$94,039	\$43,234	\$2,650	\$3,266	\$2,246	\$8,624	\$31,083	\$46,022	\$20,456	15
		11	2	27	26		6		3	8	10	11	16
		\$5,288	\$610	\$11,732	\$10,267		\$2,291		\$706	\$1,662	\$3,868	\$5,784	17
17	15	624	180	1,380	472	12	91	92	74	553	1,121	233	18
10	14	504	159	1,031	337	12	78	82	65	469	1,010	123	19
14	12	507	164	1,121	392	12	74	80	64	456	998	136	20
\$3,964	\$9,380	\$294,341	\$86,543	\$667,569	\$178,606	\$5,290	\$44,580	\$29,035	\$40,803	\$237,218	\$607,248	\$64,371	21
	12	491	163	1,093	343	12	72	76	63	446	995	125	22
\$3,964	\$9,380	\$288,840	\$86,333	\$658,938	\$161,225	\$5,290	\$44,194	\$28,485	\$40,179	\$234,568	\$606,678	\$61,870	23
		14	1	23	39		2	2	1	9	2	10	24
		\$5,196	\$210	\$8,011	\$15,500		\$386	\$330	\$624	\$2,514	\$480	\$2,436	25
		2		5	10			2		1	1	1	26
		\$305		\$620	\$1,881			\$220		\$136	\$90	\$65	27
12	12	424	152	964	307	12	61	68	59	378	913	110	28
12	12	429	152	963	311	12	61	69	59	380	910	109	29
13	12	440	153	981	322	12	61	71	58	397	921	111	30
17	12	489	157	1,061	338	12	70	73	64	431	995	118	31
17	12	549	166	1,139	376	12	80	79	66	483	1,049	132	32
17	12	556	173	1,266	380	12	84	80	68	512	1,081	141	33
17	12	558	175	1,271	384	12	87	84	67	510	1,088	136	34
16	12	545	175	1,266	382	12	85	85	69	501	1,080	137	35
16	12	530	169	1,156	361	12	80	84	67	487	1,043	135	36
11	12	500	165	1,073	331	12	70	81	59	457	992	127	37
10	12	451	160	999	316	12	63	70	61	411	947	124	38
10	12	421	159	977	308	12	62	70	59	405	921	120	39
		13	1	12	33			2	1	5	1	7	40
		13	1	12	33			2	1	7	1	5	41
		13	1	13	37			2	1	8	1	6	42
		13	1	13	40			2	1	8	1	8	43
		16	1	40	42			2	1	9	1	11	44
		17	1	40	44			2	1	11	1	15	45
		18	1	42	51			2	1	13	1	15	46
		15	1	27	47			2	1	13	1	12	47
		15	1	27	42			2	1	9	1	11	48
		13	1	19	36			2	1	9	1	11	49
		11	1	18	34			2	1	8	1	10	50
		11	1	13	29			2	1	8	1	9	51
		2		4	6			2		1		1	52
		2		4	6			2		1		1	53
		1		5	7			2		1		1	54
		2		5	8			2		1		1	55
		4		5	19			2		1		1	56
		4		5	12			2		1		1	57
		4		5	14			2		1		1	58
		2		6	12			2		1		1	59
				10	10			2		1		1	60
		1		5	10			2		1		1	61
		1		4	6			2		1		1	62
		1						2		1		1	63
\$1,245	\$6,714	\$108,748	\$144,533	\$354,613	\$120,862	\$3,016	\$39,110	\$11,380	\$11,839	\$107,504	\$282,453	\$95,700	64
\$500	\$500	\$9,493	\$702	\$12,596	\$1,952	\$1,050	\$440	\$1,644	\$305	\$2,371	\$12,398	\$4,589	65
\$260	\$426	\$7,139	\$8,554	\$17,018	\$8,081	\$145	\$2,177	\$743	\$1,425	\$6,827	\$15,435	\$2,715	66
\$985	\$5,788	\$91,665	\$135,277	\$321,591	\$110,829	\$1,821	\$36,493	\$8,993	\$10,109	\$98,306	\$253,104	\$88,396	67
		\$451		\$3,408							\$1,516		68
\$26,817	\$128,607	\$5,350,871	\$910,681	\$12,662,571	\$3,170,774	\$47,852	\$1,009,112	\$399,297	\$778,851	\$4,013,896	\$10,894,700	\$981,086	69
\$25,260	\$121,176	\$5,040,347	\$877,120	\$12,345,353	\$2,756,319	\$47,180	\$971,619	\$381,950	\$769,392	\$3,912,340	\$10,577,782	\$965,698	70
2,864,800	6,499,637	548,114,841	97,741,422	966,451,152	86,614,112	547,500	6,605,212	41,176,568	12,322,856	435,737,873	1,041,437,957	20,068,482	71
\$24,800	\$50,620	\$4,361,196	\$782,687	\$6,963,553	\$678,717	\$5,475	\$55,525	\$343,983	\$108,467	\$3,451,043	\$7,657,179	\$159,481	72
	1,452,893	10,794,226	1,225,907	110,586,292	36,833,076	930,529	18,816,388	557,527	12,342,544	7,714,987	57,559,366	16,292,834	73
\$400	\$66,337	\$527,885	\$67,952	\$4,973,938	\$1,942,420	\$41,400	\$875,825	\$30,372	\$644,023	\$335,954	\$2,563,329	\$769,264	74
	\$4,219	\$151,266	\$26,481	\$407,862	\$135,182	\$305	\$40,269	\$7,595	\$16,902	\$125,343	\$357,274	\$36,953	75
	\$5,040	\$96,346	\$1,071	\$4,059							\$219	\$1,172	76
	646,442	10,811,279	126,000	503,289							28,564	227,292	77
	\$4,822	\$85,213	\$1,071	\$3,798							\$201	\$1,147	78
		3,120,395											79
		\$5,229											80
	\$218	\$5,904		\$261							\$18	\$25	81

TABLE 10.—BUTTER—DETAILED SUMMARY,

	United States.	Arizona.	Arkansas.	California.	Colorado.	Connecticut.	Delaware.
Materials used—Continued.							
Aggregate cost—Continued.							
In making condensed milk—							
82 Total cost.....	\$157,808	\$4,365		\$2,875			
83 Milk—							
84 Pounds.....	15,480,789	215,000		250,000			
Cost.....	\$145,274	\$2,365		\$2,875			
85 Sugar—							
86 Pounds.....	101,690						
87 Cost.....	\$5,257						
88 Cans, labels, etc.....	\$7,277	\$2,000					
89 Fuel.....	\$1,607,288	\$12,340	\$562	\$59,460	\$6,209	\$6,113	\$3,115
90 Rent of power and heat.....	\$48,019			\$10,633	\$6,922		
91 Mill supplies.....	\$167,575	\$580	\$55	\$5,771	\$570	\$411	\$268
92 All other materials.....	\$373,176	\$1,049		\$775	\$5,701		
Freight.....	\$447,599			\$19,933	\$14,559	\$3,507	
Products:							
93 Aggregate value.....	\$118,520,999	\$267,495	\$33,081	\$6,891,992	\$1,198,839	\$814,703	\$197,422
Butter and its by-products—							
94 Total value.....	\$116,752,227	\$222,890	\$33,081	\$6,850,205	\$1,160,999	\$813,503	\$197,422
Packed solid—							
95 Pounds.....	359,171,280	2,500	109,309	3,068,637	402,841	272,974	27,000
96 Value.....	\$73,363,274	\$600	\$24,534	\$742,529	\$83,720	\$64,739	\$5,160
Prints or rolls—							
97 Pounds.....	166,075,562	796,933	18,000	23,665,727	4,651,165	2,630,303	617,823
98 Value.....	\$38,472,317	\$192,102	\$3,802	\$5,873,156	\$984,994	\$683,808	\$150,877
Cream sold—							
99 Pounds.....	27,621,737	229,249	60,000	921,334	931,560	695,201	422,800
100 Value.....	\$2,321,780	\$23,359	\$4,500	\$132,277	\$71,350	\$56,526	\$32,196
Skimmed milk sold, fed, or returned to patrons—							
101 Pounds.....	1,151,219,754			77,531,727	4,073,000	1,801,530	12,010,018
102 Value.....	\$1,357,774			\$63,332	\$5,938	\$2,481	\$6,829
Casein dried from skimmed milk—							
103 Pounds.....	10,720,439			113,256			70,000
104 Value.....	\$516,369			\$4,572			\$2,300
105 All other butter factory products.....	\$720,713	\$6,829	\$245	\$34,339	\$14,997	\$5,949	\$60
Cheese and its by-products—							
106 Total value.....	\$697,664	\$17,125		\$13,282	\$15,440		
Standard factory (cheddars or flats)—							
107 Pounds.....	5,180,446	161,796		127,224	135,000		
108 Value.....	\$493,740	\$17,125		\$13,082	\$14,850		
Skimmed cheese, any size or form—							
109 Pounds.....	626,617						
110 Value.....	\$22,052						
Other kinds—							
111 Pounds.....	2,445,182						
112 Value.....	\$179,947						
Whey sold—							
113 Pounds.....	1,697,134						
114 Value.....	\$850						
Whey otherwise used—							
115 Pounds.....	1,486,000				1,180,000		
116 Value.....	\$855				\$590		
117 All other cheese factory products.....	\$220			\$200			
Condensed milk and its by-products—							
118 Total value.....	\$227,601	\$8,100		\$4,000			
Condensed milk, sweetened—							
119 Pounds.....	467,879						
120 Value.....	\$26,040						
Condensed milk, unsweetened—							
121 Pounds.....	4,771,902	162,000		100,000			
122 Value.....	\$201,521	\$8,100		\$4,000			
123 All other condensed milk factory products.....	\$40						
124 All other products not classified.....	\$843,507	\$19,380		\$24,505	\$22,400	\$1,200	
Equipment:							
125 Cream separators, number.....	8,416	12	4	315	14	18	21
126 Branch factories, number.....	507			7	1		1
127 Separating or skimming stations, number.....	1,602	4		67	16		9
Power:							
128 Number of establishments reporting.....	5,130	5	3	225	12	40	11
129 Total horsepower.....	77,777	263	42	2,713	430	299	165
Owned—							
Engines—							
130 Steam—							
131 Number.....	5,712	8	3	199	15	38	15
Horsepower.....	73,280	185	42	2,167	380	291	165
Gas or gasoline—							
132 Number.....	206	1		25		2	
133 Horsepower.....	1,492	3		164		8	
Waterwheels—							
134 Number.....	69			5			
135 Horsepower.....	854			27			
Water motors—							
136 Number.....	5			3			
137 Horsepower.....	23			7			
Electric motors—							
138 Number.....	21			2	5		
139 Horsepower.....	254			8			
140 Other power, horsepower.....	190	75		25	50		
Rented—							
Electric motors—							
141 Number.....	130			40			
142 Horsepower.....	1,570			304			
143 Other kind, horsepower.....	114			11			
144 Furnished to other establishments, horsepower.....	74				12		

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[illegible]

TABLE 10.—BUTTER—DETAILED SUMMARY,

	Nebraska.	Nevada.	New Hampshire.	New Jersey.	New York.	North Dakota.	Ohio.
1 Number of establishments.....	36	4	31	29	543	56	154
2 Capital:							
3 Total.....	\$1,852,821	\$57,064	\$159,006	\$135,481	\$3,146,913	\$196,678	\$848,760
4 Land.....	\$68,248	\$1,370	\$8,650	\$7,120	\$172,409	\$8,132	\$78,555
5 Buildings.....	\$429,709	\$27,807	\$66,750	\$35,481	\$1,115,930	\$88,132	\$275,641
6 Machinery, tools, and implements.....	\$454,998	\$16,100	\$52,605	\$64,260	\$1,309,137	\$86,088	\$338,715
7 Cash and sundries.....	\$899,866	\$11,787	\$31,001	\$28,620	\$549,437	\$14,326	\$155,849
8 Proprietors and firm members.....	20		18	26	479	17	134
9 Salaried officials, clerks, etc.:							
10 Total number.....	113	1	20	5	109	24	50
11 Total salaries.....	\$102,053	\$240	\$6,188	\$1,170	\$60,429	\$1,491	\$14,860
12 Officers of corporations—							
13 Number.....	14		3		35		3
14 Salaries.....	\$30,300		\$620		\$23,106		\$400
15 General superintendents, managers, clerks, etc.—							
16 Total number.....	99	1	17	5	74	24	47
17 Total salaries.....	\$71,753	\$240	\$5,568	\$1,170	\$37,323	\$1,491	\$14,460
18 Men—							
19 Number.....	74	1	14	5	71	24	43
20 Salaries.....	\$58,051	\$240	\$4,458	\$1,170	\$36,083	\$1,491	\$13,115
21 Women—							
22 Number.....	25		3		3		4
23 Salaries.....	\$13,702		\$1,110		\$1,240		\$1,345
24 Wage-earners, including pieceworkers, and total wages:							
25 Greatest number employed at any one time during the year.....	363	10	74	50	1,271	78	290
26 Least number employed at any one time during the year.....	201	10	58	44	926	60	251
27 Average number.....	251	10	61	43	963	53	241
28 Total wages.....	\$135,787	\$9,030	\$35,481	\$21,075	\$523,202	\$37,256	\$147,403
29 Men 16 years and over—							
30 Average number.....	218	10	59	41	955	53	237
31 Wages.....	\$123,563	\$9,030	\$34,581	\$20,590	\$520,718	\$37,256	\$146,538
32 Women 16 years and over—							
33 Average number.....	33		2	1	7		3
34 Wages.....	\$12,224		\$900	\$360	\$2,328		\$660
35 Children under 16 years—							
36 Average number.....				1	1		1
37 Wages.....				\$125	\$156		\$205
38 Average number of wage-earners, including pieceworkers, employed during each month:							
39 Men 16 years and over—							
40 January.....	177	10	54	41	660	37	207
41 February.....	173	10	55	41	671	39	203
42 March.....	184	10	56	38	748	39	209
43 April.....	219	10	58	44	965	46	223
44 May.....	240	10	61	43	1,113	57	257
45 June.....	284	10	64	44	1,196	69	270
46 July.....	279	10	64	43	1,223	76	276
47 August.....	274	10	62	43	1,184	72	269
48 September.....	239	10	62	41	1,113	63	255
49 October.....	202	10	59	36	1,007	52	237
50 November.....	175	10	57	39	853	44	224
51 December.....	170	10	56	39	727	42	214
52 Women 16 years and over—							
53 January.....	23		2	1	4		3
54 February.....	23		2	1	4		3
55 March.....	23		2	1	6		3
56 April.....	24		2	1	7		3
57 May.....	28		2	1	8		3
58 June.....	51		2	1	9		3
59 July.....	57		2	1	10		3
60 August.....	53		2	1	10		3
61 September.....	40		2	1	8		3
62 October.....	31		2	1	7		3
63 November.....	21		2	1	6		3
64 December.....	22		2	1	5		3
65 Children under 16 years—							
66 January.....							
67 February.....							
68 March.....							
69 April.....							
70 May.....				2			2
71 June.....				2			3
72 July.....				2			3
73 August.....				2			2
74 September.....				2			2
75 October.....				2			2
76 November.....				2			2
77 December.....				2			2
78 Miscellaneous expenses:							
79 Total.....	\$184,959	\$2,433	\$21,928	\$10,909	\$197,857	\$10,443	\$39,720
80 Rent of works.....	\$5,580		\$463	\$1,124	\$15,017	\$1,207	\$4,465
81 Taxes.....	\$7,426	\$370	\$1,111	\$582	\$14,587	\$956	\$5,113
82 Rent of offices, insurance, interest, and all sundry expenses not hitherto included.....	\$171,953	\$2,063	\$20,354	\$9,203	\$166,914	\$8,280	\$29,692
83 Contract work.....					\$1,330		\$450
84 Materials used:							
85 Aggregate cost.....	\$2,657,741	\$161,120	\$710,118	\$317,752	\$10,955,980	\$474,344	\$2,196,695
86 In making butter—							
87 Total cost.....	\$2,581,152	\$154,905	\$696,407	\$310,625	\$10,517,202	\$459,599	\$2,109,250
88 Milk bought or received from patrons—							
89 Pounds.....	156,377,090	15,768,403	45,983,092	31,059,303	1,184,679,084	35,936,537	211,119,460
90 Cost.....	\$971,483	\$140,572	\$465,443	\$302,922	\$9,885,455	\$233,986	\$1,728,240
91 Gathered cream—							
92 Pounds.....	32,312,868	231,900	4,298,756	4,950	5,850,895	4,795,099	6,582,108
93 Cost.....	\$1,497,411	\$12,186	\$206,566	\$190	\$276,563	\$202,805	\$337,790
94 Tubs, boxes, color, salt, etc.....	\$112,258	\$2,147	\$24,398	\$7,513	\$355,184	\$22,808	\$43,220
95 In making cheese—							
96 Total cost.....		\$3,057			\$198,765		\$31,023
97 Milk bought or received from patrons—							
98 Pounds.....		300,000			23,325,017		3,779,897
99 Cost.....		\$3,000			\$184,588		\$25,541
100 Skimmed milk bought or received from patrons—							
101 Pounds.....					854,038		2,313,950
102 Cost.....					\$1,396		\$1,420
103 Boxes, salt, etc.....		\$57			\$12,781		\$1,062

¹ Includes establishments distributed as follows: Montana, 2; Rhode Island, 1; West Virginia, 1.

BUTTER, CHEESE, AND CONDENSED MILK.

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BY STATES AND TERRITORIES: 1905—Continued.

Oklahoma.	Oregon.	Pennsylvania.	South Dakota.	Tennessee.	Texas.	Utah.	Vermont.	Virginia.	Washington.	Wisconsin.	Wyoming.	All other states. ¹
3	67	519	97	3	10	39	172	4	68	902	5	4
\$15,700	\$376,532	\$2,617,024	\$481,139	\$8,300	\$34,470	\$388,830	\$925,861	\$10,120	\$491,525	\$3,630,886	\$37,983	\$10,900
\$800	\$18,825	\$124,495	\$18,938	\$250	\$5,070	\$10,925	\$37,365	\$1,800	\$20,418	\$189,170	\$600	\$2,050
\$2,000	\$51,660	\$818,363	\$158,808	\$2,000	\$7,150	\$72,730	\$288,671	\$3,400	\$56,636	\$1,363,260	\$5,400	\$3,300
\$8,650	\$153,177	\$1,101,335	\$213,285	\$3,550	\$16,780	\$117,078	\$319,301	\$3,900	\$152,679	\$1,543,826	\$12,531	\$3,600
\$4,250	\$152,870	\$572,831	\$93,108	\$2,500	\$9,470	\$188,097	\$280,324	\$1,020	\$265,192	\$534,630	\$19,452	\$1,950
4	72	495	32	2	12	34	85	6	49	605	3	5
1	32	267	126	2	23	121	121	38	252	252	3	8
\$208	\$16,046	\$52,221	\$26,293	\$1,198	\$15,770	\$26,523	\$26,523	\$30,002	\$50,286	\$2,520	8	9
11	27	27	4	4	3	7	7	12	133	133	10	11
\$6,700	\$20,489	\$5,970	\$5,970		\$4,800	\$5,355	\$13,030	\$26,266				
1	21	240	122	2	20	114	114	26	119	119	3	12
\$208	\$9,346	\$31,732	\$20,323	\$1,198	\$10,970	\$21,168	\$17,572	\$24,020	\$2,520	\$2,520		13
14	234	114	114	1	19	105	105	22	101	101	2	14
\$6,006	\$30,428	\$16,752	\$1,000	\$1,000	\$10,520	\$18,798	\$16,072	\$19,839	\$1,920	\$1,920		15
1	7	6	8	1	1	9	4	18	1	1	16	16
\$208	\$3,340	\$1,304	\$3,571	\$198	\$450	\$2,370	\$1,500	\$4,181	\$600			17
15	131	1,112	246	3	7	103	457	4	245	1,446	14	4
8	106	983	193	3	6	92	328	4	202	1,233	11	4
11	100	946	192	1	5	87	376	3	206	1,252	11	2
\$6,080	\$63,289	\$442,441	\$125,360	\$520	\$3,610	\$49,357	\$200,281	\$1,236	\$141,119	\$719,614	\$7,034	\$1,319
10	96	928	190	1	5	81	370	3	199	1,247	10	2
\$5,880	\$62,305	\$436,029	\$124,341	\$520	\$3,610	\$48,130	\$199,316	\$1,236	\$138,607	\$718,449	\$6,494	\$1,319
1	4	14	2			4	6	4	4	4	1	24
\$200	\$8,155	\$5,155	\$819			\$830	\$965	\$1,457	\$970	\$540		25
		4				2		3	1			26
		\$1,224				\$397		\$1,055	\$195			27
7	74	792	167	1	3	79	306	3	180	1,075	8	2
6	76	795	168	1	2	78	308	2	181	1,083	9	2
7	87	823	174	1	4	78	329	3	187	1,109	10	2
12	100	934	185	1	4	78	374	3	206	1,224	11	2
14	111	1,000	212	1	7	80	424	3	213	1,337	11	2
14	113	998	226	1	6	82	437	3	213	1,384	11	2
13	121	1,046	217	1	7	86	434	3	216	1,399	11	2
13	115	1,033	211	1	6	87	425	3	220	1,387	11	2
13	104	1,015	199	1	7	85	406	3	212	1,351	11	2
7	93	967	185	1	6	81	374	4	195	1,278	10	2
7	83	902	172	1	5	79	331	3	184	1,199	9	2
7	75	831	164	1	3	79	292	3	181	1,138	8	2
4	12					2	4		4	3	1	40
4	12					2	4		4	3	1	41
4	12					2	5		4	3	1	42
2	4					2	7		3	4	1	43
2	4					2	8		3	4	1	44
2	5					2	7		4	5	1	45
2	5					2	7		4	5	1	46
2	5					2	7		4	5	1	47
2	4					2	7		5	5	1	48
3	15					10	8		4	4	1	49
3	14					10	4		4	3	1	50
3	13					10	4		4	3	1	51
						2						52
						2						53
						2			10			54
						2						55
						2						56
						2			4			57
						2			4	2		58
						2			8	2		59
						2			5	2		60
						2			5	2		61
						2				2		62
						2				2		63
\$1,631	\$35,704	\$162,716	\$57,253	\$178	\$1,835	\$44,404	\$95,446	\$1,411	\$48,289	\$339,006	\$1,715	\$499
\$300	\$5,151	\$22,388	\$1,298	\$120	\$750	\$6,486	\$7,335	\$108	\$8,145	\$13,060	\$360	\$144
\$151	\$1,963	\$9,832	\$2,684	\$18	\$100	\$2,118	\$5,249	\$65	\$2,419	\$20,930	\$105	\$10
\$1,180	\$28,590	\$129,978	\$52,909	\$40	\$985	\$35,080	\$62,306	\$1,238	\$37,725	\$299,009	\$1,250	\$345
		\$518	\$362			\$720	\$20,556			\$6,007		
\$65,741	\$1,156,148	\$7,920,511	\$1,833,356	\$9,527	\$48,985	\$739,518	\$5,435,408	\$16,180	\$1,768,376	\$16,501,816	\$94,944	\$29,184
\$62,125	\$1,115,352	\$7,730,041	\$1,784,200	\$9,253	\$47,493	\$641,067	\$5,349,676	\$15,830	\$1,723,502	\$16,087,816	\$85,759	\$28,893
54,300,792	789,045,681	73,255,307	1,015,158	4,359,648	54,668,502	298,537,167	1,774,000	30,432,853	1,509,842,690	4,830,266	1,153,284	71
\$492,495	\$7,400,845	\$474,138	\$9,053	\$35,179	\$424,637	\$2,620,254	\$15,668	\$292,420	\$12,051,266	\$35,161	\$10,452	72
1,247,000	10,599,043	4,167,213	25,263,602		233,631	3,907,136	49,741,442		23,575,668	80,031,909	1,141,500	236,000
\$58,380	\$602,529	\$210,275	\$1,236,721		\$10,881	\$197,525	\$2,526,616		\$1,405,272	\$3,554,693	\$46,889	\$17,880
\$3,745	\$20,328	\$118,921	\$73,341	\$200	\$1,433	\$18,905	\$202,806	\$162	\$25,810	\$481,857	\$3,729	\$561
						\$84,095			\$10,346	\$76,698	\$6,860	
						10,882,690			1,072,404	9,585,342	953,064	
	\$4,569	\$7,864				\$80,911			\$10,027	\$72,672	\$6,510	
	502,953	1,066,380								150,000		
	\$4,367	\$7,314								\$300		
										\$3,726	\$350	
\$202		\$550				\$3,184			\$319			

TABLE 10.—BUTTER—DETAILED SUMMARY,

	Nebraska.	Nevada.	New Hamp- shire.	New Jersey.	New York.	North Dakota.	Ohio.
Materials used—Continued.							
Aggregate cost—Continued.							
In making condensed milk—							
82 Total cost.....					\$38,879		
83 Milk—							
84 Pounds.....					3,633,847		
85 Cost.....					\$38,728		
86 Sugar—							
87 Pounds.....							
88 Cost.....					\$151		
89 Cans, labels, etc.....						\$10,945	\$30,708
90 Fuel.....	\$17,634	\$2,990	\$11,195	\$6,142	\$176,198	\$485	\$239
91 Rent of power and heat.....	\$5,998		\$55		\$1,094	\$811	\$3,695
92 Mill supplies.....	\$2,271	\$131	\$1,103	\$557	\$13,895		\$20,332
93 All other materials.....						\$2,504	\$1,448
94 Freight.....	\$50,686	\$37	\$1,358	\$428	\$9,947		
Products:							
95 Aggregate value.....	\$3,308,944	\$196,651	\$841,545	\$395,499	\$12,775,608	\$556,910	\$2,688,346
96 Butter and its by-products—							
97 Total value.....	\$3,288,944	\$192,391	\$841,545	\$385,189	\$12,489,276	\$556,910	\$2,628,070
98 Packed solid—							
99 Pounds.....	10,573,016	102,537	1,989,873	456,607	42,688,793	2,657,328	6,715,685
100 Value.....	\$2,074,694	\$25,639	\$479,329	\$103,048	\$8,768,234	\$485,758	\$1,427,175
101 Prints or rolls—							
102 Pounds.....	5,462,452	655,647	1,109,016	722,239	11,664,445	355,823	4,316,673
103 Value.....	\$1,089,606	\$161,412	\$272,478	\$175,956	\$2,698,183	\$70,650	\$997,803
104 Cream sold—							
105 Pounds.....	1,077,068		563,651	982,587	4,672,586	120	1,832,728
106 Value.....	\$90,497		\$58,830	\$82,329	\$395,122	\$12	\$115,385
107 Skimmed milk sold, fed, or returned to patrons—							
108 Pounds.....	5,232,950	8,830,000	15,490,574	18,143,732	143,338,959		42,555,501
109 Value.....	\$5,917	\$5,340	\$18,281	\$17,980	\$165,415		\$53,349
110 Casein dried from skimmed milk—							
111 Pounds.....							
112 Value.....							
113 All other butter factory products.....	\$35,230		199,662	27,375	6,115,256		171,365
114 Cheese and its by-products—							
115 Total value.....		\$4,260		\$134	\$231,378		\$40,126
116 Standard factory (cheddars or flats)—							
117 Pounds.....		33,000			1,509,680		317,565
118 Value.....		\$4,130			\$133,472		\$31,571
119 Skimmed cheese, any size or form—							
120 Pounds.....				6,700	493,231		88,200
121 Value.....				\$134	\$15,332		\$4,411
122 Other kinds—							
123 Pounds.....					1,090,845		63,910
124 Value.....					\$82,574		\$3,640
125 Whey sold—							
126 Pounds.....							855,784
127 Value.....							\$429
128 Whey otherwise used—							
129 Pounds.....		260,000					30,000
130 Value.....		\$130					\$75
131 All other cheese factory products.....							
132 Condensed milk and its by-products—							
133 Total value.....					\$54,954		
134 Condensed milk, sweetened—							
135 Pounds.....					27,058		
136 Value.....					\$1,457		
137 Condensed milk, unsweetened—							
138 Pounds.....					1,052,540		
139 Value.....					\$53,497		
140 All other condensed-milk factory products.....							
141 All other products not classified.....	\$20,000			\$10,176			\$20,150
Equipment:							
142 Cream separators, number.....	64	11	42	37	1,023	32	262
143 Branch factories, number.....	12			3	74		19
144 Separating or skimming stations, number.....	5		9	5	265	7	62
Power:							
145 Number of establishments reporting.....	35	4	29	29	520	50	152
146 Total horsepower.....	865	67	494	353	8,441	618	2,125
Owned—							
Engines—							
147 Steam—							
148 Number.....	36	4	29	32	636	45	171
149 Horsepower.....	774	67	427	353	8,060	549	2,034
Gas or gasoline—							
150 Number.....	6				26	6	9
151 Horsepower.....	27				165	53	33
Water wheels—							
152 Number.....			2		19		
153 Horsepower.....			63		183		
Water motors—							
154 Number.....							
155 Horsepower.....							
Electric motors—							
156 Number.....	2						1
157 Horsepower.....	40						6
Other power, horsepower.....							42
Rented—							
Electric motors—							
158 Number.....			1		3	1	4
159 Horsepower.....			3		33	10	10
Other kind, horsepower.....	24		1			6	
160 Furnished to other establishments, horsepower.....							

Oklahoma.	Oregon.	Pennsylvania.	South Dakota.	Tennessee.	Texas.	Utah.	Vermont.	Virginia.	Washington.	Wisconsin.	Wyoming.	All other states.
		\$24,347				\$3,450				\$5,290		
		2,114,200				319,500				410,000		
		\$23,535				\$2,875				\$3,340		
		14,190								30,000		
		\$762								\$1,500		
		\$50				\$575				\$450		
\$1,326	\$9,646	\$113,637	\$37,826	\$235	\$1,065	\$9,792	\$55,043	\$326	\$12,663	\$276,280	\$1,020	\$285
\$180	\$1,249	\$2,817			\$290	\$175	\$368		\$2,108	\$1,434	\$820	
\$110	\$1,061	\$13,255	\$3,263	\$37	\$137	\$879	\$6,729	\$24	\$1,610	\$28,285	\$135	\$6
	\$9,841	\$12,663	\$1,183						\$14,743			
\$2,000	\$14,430	\$15,885	\$6,884	\$2		\$60	\$23,592		\$3,404	\$26,013	\$350	
\$88,630	\$1,375,668	\$9,304,447	\$2,182,653	\$11,498	\$62,585	\$900,980	\$5,972,628	\$20,209	\$2,157,268	\$18,650,302	\$114,354	\$34,308
\$88,630	\$1,316,020	\$9,241,806	\$2,176,732	\$11,498	\$62,585	\$786,342	\$5,972,628	\$20,209	\$2,093,848	\$18,543,137	\$106,173	\$34,308
207,000	855,962	10,642,320	10,835,596	27,789	86,908	130,000	16,169,831	18,318	463,199	68,625,831	119,200	2,500
\$41,630	\$193,691	\$2,273,635	\$2,116,900	\$6,197	\$18,875	\$26,000	\$3,400,072	\$3,837	\$125,910	\$14,032,950	\$23,840	\$500
209,100	4,189,619	24,894,021	222,864	14,100	179,898	3,418,286	11,041,274	63,485	7,240,612	19,989,376	381,315	79,422
\$47,000	\$1,065,279	\$6,363,232	\$44,423	\$3,525	\$42,720	\$747,712	\$2,434,030	\$15,109	\$1,837,718	\$4,287,819	\$77,882	\$20,938
	477,218	1,778,703	2,140	14,400		55,046	571,402	3,300	830,662	724,221	44,272	118,000
	\$40,798	\$161,913	\$215	\$1,080		\$4,470	\$65,522	\$165	\$89,095	\$60,683	\$4,151	\$12,620
	1,430,699	210,886,742	4,401,814	348,480		4,902,980	40,621,876	80,000	2,109,762	102,095,329		
	\$1,501	\$254,010	\$7,903	\$696		\$5,705	\$53,469	\$100	\$2,989	\$134,131		
		2,455,091					93,513			94,128		
		\$123,623					\$5,143			\$4,326		
	\$14,751	\$65,403	\$7,291		\$990	\$2,455	\$14,392	\$998	\$38,136	\$23,228	\$300	\$250
	\$5,162	\$8,520				\$107,346			\$11,778	\$93,778	\$8,181	
	50,485	107,047				1,088,275			111,125	\$13,400	\$4,000	
	\$5,102	\$8,520				\$107,192			\$11,778	\$78,040	\$8,181	
										15,000		
										\$600		
										137,394		
										\$15,071		
						308,000				133,350		
						\$154				\$67		
	16,000											
	\$60											
		\$30,308				\$6,917				\$8,387		
		45,920								134,000		
		\$1,773								\$8,387		
		690,968				127,800						
		\$28,535				\$6,917						
	\$54,486	\$23										

TABLE 11.—CHEESE—DETAILED

	United States.	California.	Colorado.	Idaho.	Illinois.	Indiana.	Iowa.	Kansas.	Maine.	Michigan.
1 Number of establishments.....	3,610	44	8	4	41	24	48	23	10	162
2 Capital:										
3 Total.....	\$6,232,182	\$107,945	\$42,824	\$2,400	\$74,436	\$42,220	\$112,367	\$37,994	\$18,964	\$370,798
4 Land.....	\$361,207	\$16,720	\$2,300	\$125	\$8,150	\$2,970	\$10,195	\$1,500	\$250	\$15,360
5 Buildings.....	\$2,924,748	\$24,020	\$12,500	\$950	\$30,300	\$14,220	\$42,363	\$18,957	\$7,500	\$133,211
6 Machinery, tools, and implements.....	\$1,810,074	\$20,632	\$10,800	\$1,325	\$17,060	\$15,310	\$30,485	\$9,280	\$6,825	\$105,642
7 Cash and sundries.....	\$1,136,153	\$46,573	\$17,224		\$18,926	\$9,720	\$29,324	\$8,257	\$4,389	\$116,585
8 Proprietors and firm members.....	3,289	51	8	5	37	21	48	31	6	165
9 Salaried officials, clerks, etc.:										
10 Total number.....	177	1			5	5	25	2	1	11
11 Total salaries.....	\$36,696	\$900			\$3,049	\$1,720	\$2,078	\$685	\$12	\$4,040
12 Officers of corporations—										
13 Number.....	55				3		13	1		5
14 Salaries.....	\$5,433				\$2,444		\$627	\$25		\$766
15 General superintendents, managers, clerks, etc.—										
16 Total number.....	122	1			2	5	12	1	1	6
17 Total salaries.....	\$31,263	\$900			\$605	\$1,720	\$1,451	\$660	\$12	\$3,274
18 Men—										
19 Number.....	115	1			2	3	12	1	1	6
20 Salaries.....	\$29,532	\$900			\$605	\$1,270	\$1,451	\$660	\$12	\$3,274
21 Women—										
22 Number.....	7					2				
23 Salaries.....	\$1,731					\$450				
24 Wage-earners, including pieceworkers, and total wages:										
25 Greatest number employed at any one time during the year.....	4,228	75	13	2	62	32	64	30	10	252
26 Least number employed at any one time during the year.....	3,586	62	10	2	51	28	46	25	9	191
27 Average number.....	2,652	55	11	1	39	23	39	22	4	171
28 Total wages.....	\$1,493,906	\$33,488	\$6,876	\$500	\$19,783	\$11,067	\$19,606	\$9,521	\$2,813	\$92,161
29 Men 16 years and over—										
30 Average number.....	2,587	53	11	1	39	23	38	22	4	165
31 Wages.....	\$1,476,581	\$32,864	\$6,876	\$500	\$19,783	\$11,067	\$19,446	\$9,521	\$2,813	\$90,499
32 Women 16 years and over—										
33 Average number.....	54	1					1			4
34 Wages.....	\$15,750	\$480					\$160			\$1,438
35 Children under 16 years—										
36 Average number.....	11	1								2
37 Wages.....	\$1,575	\$144								\$224
38 Average number of wage-earners, including pieceworkers, employed during each month:										
39 Men 16 years and over—										
40 January.....	869	50	11		19	16	21	18		88
41 February.....	1,018	51	11		19	19	21	19		88
42 March.....	1,273	47	11		21	19	22	19		120
43 April.....	2,299	53	12		27	22	28	28	1	166
44 May.....	3,618	57	13	2	48	28	42	28	6	223
45 June.....	3,911	58	13	2	53	30	52	29	8	236
46 July.....	3,954	57	11	2	53	29	55	28	10	227
47 August.....	3,868	58	11	2	54	29	54	28	9	211
48 September.....	3,556	54	11	2	55	27	50	23	9	200
49 October.....	3,323	52	10	2	53	24	45	18	3	177
50 November.....	2,181	49	9		43	17	37	16	1	138
51 December.....	1,174	50	9		23	16	29	17	1	106
52 Women 16 years and over—										
53 January.....	26	1								1
54 February.....	27	1								1
55 March.....	30	1								2
56 April.....	49	1								5
57 May.....	72	1					2			6
58 June.....	83	1					3			6
59 July.....	83	1					3			5
60 August.....	83	1					2			6
61 September.....	70	1					1			6
62 October.....	56	1								4
63 November.....	41	1								4
64 December.....	28	1					1			2
65 Children under 16 years—										
66 January.....	5	1								2
67 February.....	6	1								2
68 March.....	6	1								2
69 April.....	10	1								2
70 May.....	15	1								3
71 June.....	19	1								3
72 July.....	22	3								3
73 August.....	19	2								3
74 September.....	15	1								1
75 October.....	7									1
76 November.....	5									1
77 December.....	3									1
78 Miscellaneous expenses:										
79 Total.....	\$322,062	\$6,355	\$1,521	\$173	\$3,915	\$4,789	\$6,213	\$2,371	\$1,387	\$25,956
80 Rent of works.....	\$42,394	\$1,242	\$120	\$90	\$1,338	\$2,370	\$726	\$283	\$102	\$2,444
81 Taxes.....	\$32,035	\$790	\$181	\$13	\$346	\$324	\$579	\$199	\$104	\$1,938
82 Rent of offices, interest, insurance, and all sundry expenses not hitherto included.	\$244,925	\$4,323	\$1,220	\$70	\$2,231	\$2,095	\$4,908	\$1,889	\$1,181	\$21,574
83 Contract work.....	\$2,708									
84 Materials used:										
85 Aggregate cost.....	\$25,256,612	\$341,544	\$67,462	\$7,089	\$233,921	\$100,528	\$233,059	\$84,961	\$36,244	\$1,508,026
86 In making butter—										
87 Total cost.....	\$893,203	\$1,836		\$1,250	\$5,438	\$17,033	\$10,454		\$2,846	\$18,678
88 Milk bought or received from patrons—										
89 Pounds.....	104,291,298	184,248			519,420	1,881,800				1,996,512
90 Cost.....	\$824,592	\$1,468			\$4,988	\$16,353				\$16,783
91 Gathered cream—										
92 Pounds.....	524,198	6,300		24,000						
93 Cost.....	\$21,000	\$908		\$1,200			264,064		64,000	
94 Tubs, boxes, color, salt, etc.....	\$47,611	\$60		\$50	\$450	\$680	\$368		\$2,816	
95								\$30	\$1,895	

¹ Includes establishments distributed as follows: Connecticut, 1; Delaware, 1; Massachusetts, 2; South Dakota, 1; Virginia, 1; West Virginia, 2.

BUTTER, CHEESE, AND CONDENSED MILK.

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SUMMARY, BY STATES: 1905.

Minne- sota.	Missouri.	Ne- braska.	New Hamp- shire.	New York.	North Dakota.	Ohio.	Oregon.	Pennsyl- vania.	Utah.	Vermont.	Washing- ton.	Wisconsin.	All other states. ¹	
59	17	4	3	1,198	4	274	31	120	10	48	16	1,454	8	1
\$113,261	\$25,868	\$8,375	\$4,250	\$2,356,094	\$5,500	\$365,765	\$52,499	\$229,372	\$17,650	\$127,508	\$30,064	\$2,070,613	\$15,415	2
\$4,865	\$2,165	\$320	\$250	\$125,262	\$230	\$22,415	\$5,895	\$25,845	\$925	\$4,535	\$1,370	\$108,735	\$825	4
\$52,250	\$12,800	\$3,100	\$2,300	\$1,096,131	\$3,320	\$160,242	\$18,893	\$98,925	\$4,975	\$3,225	\$9,750	\$1,119,716	\$5,100	4
\$37,085	\$6,750	\$1,505	\$1,500	\$718,616	\$1,950	\$129,548	\$23,431	\$71,609	\$8,700	\$34,480	\$13,562	\$541,639	\$2,340	5
\$19,061	\$4,153	\$3,450	\$200	\$416,085		\$53,560	\$4,280	\$32,993	\$3,050	\$35,268	\$5,382	\$300,523	\$7,150	6
32	16	4	2	1,240	1	182	19	126	4	21	11	1,252	7	7
14	2			23	1	6	4	4		12	6	55		8
\$1,861	\$188			\$14,695	\$84	\$97	\$499	\$120		\$3,428	\$400	\$2,840		9
1							3					29		10
\$700							\$249					\$622		11
13	2			23	1	6	1	4		12	6	26		12
\$1,161	\$188			\$14,695	\$84	\$97	\$250	\$120		\$3,428	\$400	\$2,218		13
13	2			21	1	6	1	4		12	6	23		14
\$1,161	\$188			\$13,535	\$84	\$97	\$250	\$120		\$3,428	\$400	\$2,097		15
				2								3		16
				\$1,160								\$121		17
68	15	4	7	1,463	3	359	43	156	18	64	14	1,461	13	18
60	12	4	6	1,228	4	318	37	128	8	58	14	1,277	9	19
43	12	2	2	895	2	210	30	84	11	43	9	938	6	20
\$26,284	\$4,475	\$900	\$971	\$486,240	\$990	\$130,389	\$17,587	\$43,776	\$5,788	\$22,973	\$6,510	\$548,373	\$2,835	21
43	11	2	2	869	2	208	30	83	10	41	8	917	5	22
\$26,284	\$4,415	\$900	\$971	\$478,069	\$990	\$129,425	\$17,587	\$43,598	\$5,688	\$22,573	\$6,360	\$543,617	\$2,735	23
				26		2		1		2		16		24
				\$8,171		\$964		\$178	\$100	\$400		\$3,859		25
	1										1	5	1	26
	\$50										\$150	\$897	\$100	27
23	9	1	3	218		50	22	15	8	24	6	263	4	28
24	9	1	3	342		60	22	17	9	24	7	268	4	29
25	10	1	3	472		75	22	19	8	24	8	343	4	30
37	10	1	3	872		174	33	54	10	30	10	729	6	31
55	12	3	4	1,269	4	313	37	129	10	56	12	1,261	6	32
62	14	3	2	1,376	4	329	38	141	11	59	13	1,372	6	33
60	13	3	2	1,386	4	349	41	148	12	60	12	1,386	6	34
63	12	3	2	1,352	4	341	38	147	12	58	10	1,364	6	35
56	12	3	2	1,172	4	315	38	135	12	52	8	1,310	4	36
50	11	2		1,097	3	281	29	116	9	47	4	1,283	4	37
35	10	2		599	1	141	20	56	7	35	4	955	4	38
26	10	1		273		68	20	19		23	2	470	4	39
				19						2		3		40
				19						2		4		41
				19						2		6		42
				26		1				2		14		43
				33		4		3		2		21		44
				35		4		2		3		28		45
				34		4		2		3		28		46
				34		4		2		3		28		47
				27		4		1		3		24		48
				26		1		1		3		18		49
				22		1				2		13		50
				18		1						5		51
	1											1		52
	1											2		53
	1											2		54
	1											2		55
	1											6		56
	1											10		57
	1											11		58
	1											11		59
	1											8		60
	1											5		61
	1											3		62
	1											1		63
\$5,587	\$1,011	\$125	\$50	\$121,291	\$301	\$27,029	\$3,274	\$10,188	\$1,652	\$4,452	\$1,604	\$91,633	\$1,185	64
\$676	\$130	\$72		\$12,666	\$56	\$5,230	\$176	\$693	\$340	\$660	\$60	\$12,815	\$105	65
\$538	\$135	\$20	\$15	\$11,801	\$15	\$2,583	\$504	\$1,405	\$131	\$567	\$253	\$9,444	\$150	66
\$4,373	\$746	\$33	\$35	\$94,134	\$230	\$19,216	\$2,594	\$8,072	\$1,181	\$3,225	\$1,291	\$69,374	\$930	67
				\$2,690				\$18						68
\$244,865	\$51,945	\$14,237	\$20,262	\$10,027,606	\$3,930	\$1,429,136	\$204,940	\$875,445	\$49,859	\$380,569	\$80,062	\$9,238,872	\$22,050	69
\$108				\$668,533		\$83,325	\$7,194	\$2,881	\$6,608	\$9,968	\$4,120	\$52,074	\$857	70
				77,153,869		12,755,536	770,396	297,000	859,992	1,114,955	330,000	6,320,765	106,805	71
				\$626,145		\$79,778	\$7,024	\$2,821	\$5,838	\$9,583	\$2,970	\$50,014	\$827	72
2,880				129,000					12,687	982	20,100	185		73
\$100				\$4,750					\$630	\$51	\$1,050	\$9		74
\$8				\$37,638		\$3,547	\$170	\$60	\$140	\$334	\$100	\$2,051	\$30	75

MANUFACTURES.

TABLE 11.—CHEESE—DETAILED

	United States.	California.	Colorado.	Idaho.	Illinois.	Indiana.	Iowa.	Kansas.	Maine.	Michigan.
Materials used—Continued.										
Aggregate cost—Continued.										
In making cheese—										
76 Total cost.....	\$24,048,203	\$333,393	\$66,196	\$5,654	\$223,845	\$81,142	\$216,429	\$83,072	\$33,123	\$1,467,414
Milk bought or received from patrons—										
77 Pounds.....	2,951,390,154	33,254,215	7,356,277	674,000	25,760,210	9,534,152	27,970,953	11,385,334	3,562,500	165,825,871
78 Cost.....	\$22,930,559	\$322,234	\$62,013	\$5,160	\$201,661	\$78,156	\$205,678	\$79,346	\$31,992	\$1,405,506
Skimmed milk bought or received from patrons—										
79 Pounds.....	25,396,739				7,896,655					
80 Cost.....	\$41,931				\$11,740					
81 Boxes, salt, etc.....	\$1,075,713	\$11,159	\$4,183	\$494	\$10,444	\$2,986	\$10,751	\$3,726	\$1,131	\$61,908
In making condensed milk—										
82 Total cost.....	\$82					\$82				
Milk—										
83 Pounds.....	3,800					3,800				
84 Cost.....	\$34					\$34				
Sugar—										
85 Pounds.....	600					600				
86 Cost.....	\$30					\$30				
87 Cans, labels, etc.....	\$18					\$18				
88 Fuel.....	\$288,062	\$5,660	\$1,126	\$180	\$3,807	\$2,049	\$4,532	\$1,696	\$226	\$17,059
89 Rent of power and heat.....	\$495									\$25
90 Mill supplies.....	\$10,950	\$225	\$65	\$5	\$135	\$120	\$764	\$69	\$6	\$1,105
91 All other materials.....										
92 Freight.....	\$15,617	\$430	\$75		\$696	\$102	\$880	\$124	\$43	\$3,745
Products:										
Aggregate value.....	\$29,138,100	\$421,202	\$91,305	\$8,948	\$292,994	\$128,496	\$291,199	\$105,048	\$43,005	\$1,765,163
Butter and its by-products—										
94 Total value.....	\$1,075,341	\$2,480		\$1,508	\$5,229	\$18,469	\$12,597		\$3,520	\$20,875
Packed solid—										
95 Pounds.....	4,164,754	2,000		6,857	22,071	74,688	54,896		16,000	101,850
96 Value.....	\$888,664	\$400		\$1,508	\$5,229	\$17,869	\$12,597		\$3,520	\$20,783
Prints or rolls—										
97 Pounds.....	498,835	7,677				3,000				
98 Value.....	\$121,986	\$1,900				\$600				
Cream sold—										
99 Pounds.....	212,060									
100 Value.....	\$23,085									
Skimmed milk sold, fed, or returned to patrons—										
101 Pounds.....	7,633,880	205,000								91,800
102 Value.....	\$8,403	\$180								\$92
Casein dried from skimmed milk—										
103 Pounds.....	621,250									
104 Value.....	\$25,728									
105 All other butter factory products.....	\$7,475									
Cheese and its by-products—										
106 Total value.....	\$28,062,649	\$418,722	\$91,305	\$7,440	\$287,765	\$109,917	\$278,602	\$105,048	\$39,485	\$1,744,288
Standard factory (cheddars or flats)—										
107 Pounds.....	233,758,565	3,299,827	736,673	67,400	1,169,300	902,678	2,779,498	1,120,863	361,850	16,452,577
108 Value.....	\$21,464,752	\$385,774	\$87,674	\$7,440	\$111,450	\$99,052	\$277,006	\$104,914	\$39,485	\$1,676,280
Skimmed cheese, any size or form—										
109 Pounds.....	2,386,957				653,502					
110 Value.....	\$114,908				\$28,013					
Other kinds—										
111 Pounds.....	71,587,474	174,000			1,456,563	63,625				362,279
112 Value.....	\$6,258,392	\$26,375			\$145,361	\$7,037				\$41,796
Whey sold—										
113 Pounds.....	78,206,900	837,175	500,000		899,800	692,500	522,781	154,000		30,925,913
114 Value.....	\$43,846	\$393	\$250		\$450	\$230	\$57	\$77		\$13,838
Whey otherwise used—										
115 Pounds.....	85,061,192	8,639,779	1,262,900			1,653,500	1,708,393	25,000		14,493,180
116 Value.....	\$66,356	\$4,337	\$901			\$3,209	\$1,539	\$25		\$11,563
117 All other cheese factory products.....	\$114,395	\$1,843	\$2,480		\$2,491	\$389		\$32		\$811
Condensed milk and its by-products—										
118 Total value.....	\$60					\$60				
Condensed milk, sweetened—										
119 Pounds.....										
120 Value.....										
Condensed milk, unsweetened—										
121 Pounds.....	1,000					1,000				
122 Value.....	\$60					\$60				
123 All other condensed-milk products.....										
124 All other products not classified.....	\$50					\$50				
Equipment:										
125 Cream separators, number.....	353	5	2	1	11	11	1			18
126 Branch factories, number.....	143				11	2	1			23
127 Separating or skimming stations, number.....	9					1				
Power:										
128 Number of establishments reporting.....	1,218	16	5	2	22	13	36	17	2	62
129 Total horsepower.....	10,446	152	96	4	184	213	316	167	12	595
Owned—										
Engines—										
Steam—										
130 Number.....	1,183	17	5	1	20	14	37	16	2	60
131 Horsepower.....	10,006	137	96	3	159	197	308	163	12	580
Gas or gasoline—										
132 Number.....	66	1		1	2	1	1			3
133 Horsepower.....	218	15		1	5	16	6			9
Water wheels—										
134 Number.....	3								1	
135 Horsepower.....	64								4	
Water motors										
136 Number.....	1							1		
137 Horsepower.....	2						2			
Electric motors—										
138 Number.....	7									
139 Horsepower.....	80									
140 Other power, horsepower.....	56				20					
Rented—										
Electric motors—										
141 Number.....	1									
142 Horsepower.....	20									
143 Other kind, horsepower.....										
144 Furnished to other establishments, horsepower.....	12									

BUTTER, CHEESE, AND CONDENSED MILK.

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SUMMARY, BY STATES: 1905—Continued.

Minne- sota.	Missouri.	Ne- braska.	New Hamp- shire.	New York.	North Dakota.	Ohio.	Oregon.	Pennsyl- vania.	Utah.	Vermont.	Washing- ton.	Wisconsin.	All other states.	
\$239,048	\$51,124	\$13,741	\$20,101	\$9,256,692	\$3,832	\$1,319,582	\$195,268	\$861,264	\$41,893	\$366,314	\$74,548	\$9,073,813	\$20,715	76
30,680,826	6,887,314	1,601,200	2,102,900	1,160,528,260	528,979	172,027,972	21,643,660	105,382,584	5,425,265	42,573,871	8,109,469	1,106,219,751	2,354,591	77
\$228,526	\$48,232	\$12,951	\$19,123	\$3,818,797	\$3,633	\$1,263,315	\$189,262	\$802,347	\$40,599	\$351,971	\$72,394	\$8,668,248	\$19,415	78
				4,673,126		2,404,000		10,172,958					250,000	79
				\$7,067		\$2,404		\$20,345					\$375	80
\$10,522	\$2,892	\$790	\$978	\$430,828	\$199	\$53,863	\$6,006	\$38,572	\$1,294	\$14,343	\$2,154	\$405,565	\$925	81
														82
														83
														84
														85
														86
\$5,109	\$791	\$482	\$101	\$96,265	\$88	\$24,280	\$2,394	\$8,407	\$1,059	\$3,918	\$1,305	\$107,010	\$458	87
				\$450							\$20			88
\$354	\$30	\$11		\$3,089		\$1,430	\$84	\$473	\$55	\$85	\$60	\$2,765	\$20	89
\$246		\$3		\$2,577	\$10	\$519		\$2,420	\$244	\$284	\$9	\$3,210		90
\$309,347	\$67,445	\$17,166	\$22,564	\$11,403,719	\$5,571	\$1,755,913	\$253,675	\$1,019,159	\$62,831	\$443,806	\$96,620	\$10,500,532	\$32,392	91
\$150				\$813,473		\$100,969	\$3,497	\$3,105	\$7,977	\$10,127	\$5,054	\$59,963	\$1,348	92
720				3,042,936		468,104		13,500	34,636	41,000	3,800	281,696		93
\$150				\$656,612		\$90,439		\$3,105	\$7,100	\$9,020	\$1,064	\$59,268		94
				382,127		42,019	35,018		3,625	4,769	15,700		5,300	95
				\$95,064		\$9,264	\$7,921		\$877	\$1,022	\$3,960		\$1,348	96
				200,920		11,140								97
				\$22,217		\$868								98
														99
														100
				6,163,621		158,000	480,000					535,459		101
				\$9,702		\$158	\$576					\$695		102
				621,250										103
				\$25,728										104
				\$7,150		\$240				\$85				105
\$309,197	\$67,445	\$17,166	\$22,564	\$10,590,246	\$5,571	\$1,654,944	\$245,178	\$1,016,054	\$54,854	\$433,679	\$91,566	\$10,440,569	\$31,044	106
2,963,024	687,137	158,470	207,149	100,700,034	51,894	12,901,850	2,163,582	10,466,885	541,455	4,271,160	802,258	70,754,662	198,339	107
\$294,043	\$66,793	\$17,166	\$22,564	\$8,770,545	\$5,571	\$1,200,208	\$239,519	\$935,081	\$54,529	\$416,786	\$90,183	\$6,540,003	\$22,686	108
				802,748		255,400		521,409			8,000	11,348	44,550	109
				\$45,972		\$11,783		\$26,056			\$640	\$454	\$1,990	110
62,071				27,503,528		3,724,848	41,525	358,083		72,000		37,692,052	76,900	111
\$7,778				\$1,711,019		\$404,350	\$4,755	\$38,158		\$10,800		\$3,854,685	\$6,278	112
	374,000			22,291,343		7,878,883	401,000	5,147,000			150,000	7,432,505		113
	\$187			\$13,407		\$3,974	\$100	\$5,522			\$75	\$5,286		114
6,459,404	524,342			18,387,779		6,738,204	1,856,677	13,610,333	649,700	5,840,966	240,000	2,971,035		115
\$3,681	\$465			\$13,403		\$3,884	\$804	\$11,237	\$325	\$5,404	\$240	\$5,339		116
\$3,695				\$35,500		\$30,745				\$689	\$428	\$34,802	\$90	117
														118
														119
														120
														121
														122
														123
														124
2		1		174		33	3	3	4	5	3	83		125
				36		21						38		126
				5		2						1		127
31	7	3	2	450		107	12	37	5	18	4	365	2	128
361	44	36	20	3,670		1,143	74	314	37	182	32	2,782	12	129
30	7	3	3	460		104	10	37	5	18	4	328		130
321	44	36	20	3,512		1,121	69	308	37	170	32	2,663	12	131
				8		7	2	1		1		38		132
				30		22	5	6		12		91		133
														134
1				1										135
40				20										136
														137
														138
				7										139
				80										140
				8										
				1										141
				20										142
														143
						12								144

TABLE 12.—CONDENSED MILK—DETAILED

	United States.	California.
1 Number of establishments.....	81	6
2 Capital:		
3 Total.....	\$10,942,955	\$473,729
4 Land.....	\$433,225	\$5,700
5 Buildings.....	\$2,881,980	\$38,985
6 Machinery, tools, and implements.....	\$3,512,416	\$127,886
7 Cash and sundries.....	\$4,115,334	\$301,148
8 Proprietors and firm members.....	15	
9 Salaried officials, clerks, etc.:		
10 Total number.....	313	11
11 Total salaries.....	\$363,332	\$11,585
12 Officers of corporations—		
13 Number.....	29	2
14 Salaries.....	\$72,040	\$2,400
15 General superintendents, managers, clerks, etc.—		
16 Total number.....	284	9
17 Total salaries.....	\$291,292	\$9,185
18 Men—		
19 Number.....	235	6
20 Salaries.....	\$266,189	\$7,965
21 Women—		
22 Number.....	49	3
23 Salaries.....	\$25,103	\$1,220
24 Wage-earners, including pieceworkers, and total wages:		
25 Greatest number employed at any one time during the year.....	4,178	148
26 Least number employed at any one time during the year.....	2,793	70
27 Average number.....	3,375	102
28 Total wages.....	\$1,513,159	\$59,102
29 Men 16 years and over—		
30 Average number.....	2,172	77
31 Wages.....	\$1,168,004	\$49,927
32 Women 16 years and over—		
33 Average number.....	1,133	25
34 Wages.....	\$332,647	\$9,175
35 Children under 16 years—		
36 Average number.....	70	
37 Wages.....	\$12,508	
38 Average number of wage-earners, including pieceworkers, employed during each month:		
39 Men 16 years and over—		
40 January.....	1,972	67
41 February.....	1,998	57
42 March.....	2,120	86
43 April.....	2,213	89
44 May.....	2,288	86
45 June.....	2,408	82
46 July.....	2,379	79
47 August.....	2,296	82
48 September.....	2,181	78
49 October.....	2,145	70
50 November.....	2,053	70
51 December.....	2,011	78
52 Women 16 years and over—		
53 January.....	1,051	17
54 February.....	1,041	15
55 March.....	1,121	23
56 April.....	1,195	43
57 May.....	1,227	46
58 June.....	1,285	47
59 July.....	1,216	23
60 August.....	1,160	20
61 September.....	1,138	19
62 October.....	1,087	15
63 November.....	1,067	13
64 December.....	1,008	19
65 Children under 16 years—		
66 January.....	44	
67 February.....	45	
68 March.....	50	
69 April.....	55	
70 May.....	68	
71 June.....	101	
72 July.....	117	
73 August.....	108	
74 September.....	71	
75 October.....	66	
76 November.....	59	
77 December.....	56	
78 Miscellaneous expenses:		
79 Total.....	\$940,959	\$23,727
80 Rent of works.....	\$4,366	\$350
81 Taxes.....	\$44,890	\$1,884
82 Rent of offices, insurance, interest, and all sundry expenses not hitherto included.....	\$891,303	\$21,493
83 Contract work.....	\$400	
84 Materials used:		
85 Aggregate cost.....	\$16,372,954	\$357,819
86 In making butter—		
87 Total cost.....	\$330,134	\$19,009
88 Milk bought or received from patrons—		
89 Pounds.....	33,135,234	1,708,980
90 Cost.....	\$284,696	\$14,890
91 Gathered cream—		
92 Pounds.....	527,074	62,656
93 Cost.....	\$30,841	\$3,251
94 Tubs, boxes, color, salt, etc.....	\$14,597	\$398
95 In making cheese—		
96 Total cost.....	\$68,412	
97 Milk bought or received from patrons—		
98 Pounds.....	7,299,258	
99 Cost.....	\$59,277	
100 Skimmed milk bought or received from patrons—		
101 Pounds.....	4,236,213	
102 Cost.....	\$6,122	
103 Boxes, salt, etc.....	\$3,013	

1 Includes establishments distributed as follows: Colorado, 1; Indiana, 2; Iowa, 1; Maine, 1; New Hampshire, 1; New Jersey, 2; Oregon, 2; Utah, 1; Vermont, 1

BUTTER, CHEESE, AND CONDENSED MILK.

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SUMMARY, BY STATES: 1905.

Illinois.	Michigan.	New York.	Ohio.	Pennsylvania.	Washington.	Wisconsin.	All other states. ¹	
15	6	25	3	6	4	4	12	1
\$3,702,410	\$536,867	\$3,563,419	\$213,699	\$802,720	\$345,729	\$195,919	\$1,108,463	2
\$142,410	\$21,450	\$148,375	\$9,150	\$59,000	\$8,200	\$15,000	\$23,940	3
\$1,002,266	\$72,953	\$1,186,166	\$87,100	\$153,500	\$37,500	\$62,000	\$241,500	4
\$1,064,598	\$179,897	\$1,260,351	\$73,984	\$192,591	\$150,500	\$72,000	\$390,609	5
\$1,493,136	\$262,567	\$968,527	\$43,405	\$397,629	\$149,529	\$46,919	\$452,414	6
2	3	2	2	2		1	3	7
79	17	83	5	40	24	16	38	8
\$97,687	\$13,617	\$117,276	\$3,720	\$36,225	\$29,750	\$15,800	\$37,672	9
6	1	5		5	4	2	4	10
\$17,700	\$1,800	\$19,000		\$8,060	\$12,800	\$4,280	\$6,000	11
73	16	78	5	35	20	14	34	12
\$79,987	\$11,817	\$98,276	\$3,720	\$28,165	\$16,950	\$11,520	\$31,672	13
58	14	69	5	33	13	13	24	14
\$73,103	\$11,130	\$92,956	\$3,720	\$26,765	\$13,150	\$10,800	\$26,600	15
15	2	11		2	7	1	10	16
\$6,884	\$657	\$5,320		\$1,400	\$3,800	\$720	\$5,072	17
1,349	320	1,249	71	264	210	140	427	18
1,004	235	820	43	135	146	97	243	19
1,189	248	1,010	37	188	159	108	334	20
\$514,453	\$102,923	\$475,630	\$14,155	\$70,093	\$71,182	\$60,089	\$145,332	21
697	139	692	23	120	118	87	219	22
\$367,982	\$73,563	\$384,320	\$10,940	\$55,068	\$58,589	\$54,002	\$113,613	23
451	109	313	9	66	35	18	107	24
\$138,131	\$29,360	\$90,989	\$2,566	\$14,925	\$11,673	\$5,334	\$30,494	25
41		5	5	2	6	3	8	26
\$8,340		\$321	\$649	\$100	\$1,120	\$753	\$1,225	27
674	132	618	7	96	115	86	177	28
703	132	618	7	97	116	83	185	29
712	144	652	7	104	121	84	210	30
731	151	681	7	126	132	85	211	31
717	153	711	7	143	151	88	232	32
733	142	764	27	167	154	95	244	33
714	143	760	32	165	144	95	247	34
696	136	722	39	144	133	90	254	35
687	135	709	38	119	97	88	230	36
686	131	730	35	94	92	85	222	37
653	135	690	35	93	84	81	212	38
658	134	649	35	92	77	84	204	39
459	86	297		60	35	15	82	40
452	101	286		54	35	16	82	41
453	110	313		67	36	16	103	42
467	118	329		78	38	18	104	43
464	134	336		75	42	18	112	44
463	130	358	12	83	41	19	132	45
451	114	353	16	78	40	19	122	46
445	110	341	16	62	38	19	109	47
448	109	310	18	77	31	19	107	48
443	99	296	17	57	30	19	111	49
446	99	279	15	56	29	19	111	50
421	98	258	14	45	25	19	109	51
26		5			5	2	6	52
26		5			6	2	6	53
29		5			6	2	8	54
33		5			7	2	8	55
40		4		6	8	2	8	56
61		5	10	6	8	2	9	57
65		5	14	6	7	8	12	58
60		5	13	6	7	8	9	59
44		5	7		5	2	8	60
39		6	6		5	2	8	61
36		5	5		4	2	7	62
33		5	5		4	2	7	63
\$402,074	\$19,097	\$257,092	\$6,374	\$64,640	\$39,114	\$16,778	\$112,063	64
\$360		\$2,456					\$1,200	65
\$13,709	\$4,225	\$15,680	\$458	\$1,080	\$983	\$1,308	\$5,563	66
\$388,005	\$14,872	\$238,956	\$5,916	\$63,560	\$38,131	\$15,070	\$105,300	67
						\$400		68
\$5,124,206	\$1,505,341	\$5,809,286	\$103,366	\$860,363	\$543,439	\$665,497	\$1,403,637	69
\$87,436	\$18,637	\$92,121	\$9,082	\$45,825		\$48,323	\$30,001	70
4,768,308	1,435,400	10,523,792	1,089,000	4,518,000		5,739,584	3,352,170	71
\$47,877	\$15,827	\$78,404	\$8,712	\$45,175		\$46,160	\$27,651	72
268,244		196,174						73
\$16,703		\$10,887						74
\$2,556	\$2,810	\$2,830	\$370	\$650		\$2,163	\$2,350	75
\$14,117		\$49,345					\$4,950	76
987,400		5,711,858					600,000	77
\$8,000		\$46,627					\$4,650	78
3,549,600		686,613						79
\$5,324		\$798						80
\$793		\$1,920					\$300	81

TABLE 12.—CONDENSED MILK—DETAILED

		United States.	California.
Material used—Continued.			
Aggregate cost—Continued.			
In making condensed milk—			
82	Total cost.....	\$15,460,631	\$320,183
Milk—			
83	Pounds.....	711,965,913	17,359,384
84	Cost.....	\$8,325,361	\$168,218
Sugar—			
85	Pounds.....	67,707,741	812,926
86	Cost.....	\$3,310,605	\$43,152
87	Cans, labels, etc.....	\$3,824,665	\$108,813
88	Fuel.....	\$401,985	\$11,459
89	Rent of power and heat.....	\$546	
90	Mill supplies.....	\$38,197	\$2,610
91	All other materials.....		
92	Freight.....	\$73,049	\$4,558
Products:			
93	Aggregate value.....	\$20,523,690	\$507,743
Butter and its by-products—			
94	Total value.....	\$377,712	\$23,010
Packed solid—			
95	Pounds.....	1,096,962	
96	Value.....	\$231,368	
Prints or rolls—			
97	Pounds.....	470,748	93,345
98	Value.....	\$111,844	\$22,860
Cream sold—			
99	Pounds.....	298,117	
100	Value.....	\$19,542	
Skimmed milk sold, fed, or returned to patrons—			
101	Pounds.....	2,560,823	150,000
102	Value.....	\$2,561	\$150
Casein dried from skimmed milk—			
103	Pounds.....	240,185	
104	Value.....	\$12,002	
105	All other butter factory products.....	\$395	
Cheese and its by-products—			
106	Total value.....	\$77,969	
Standard factory (cheddars or flats)—			
107	Pounds.....	713,623	
108	Value.....	\$66,361	
Skimmed cheese, any size or form—			
109	Pounds.....	446,008	
110	Value.....	\$11,608	
Other kinds—			
111	Pounds.....		
112	Value.....		
Whey sold—			
113	Pounds.....		
114	Value.....		
Whey otherwise used—			
115	Pounds.....		
116	Value.....		
117	All other cheese factory products.....		
Condensed milk and its by-products			
118	Total value.....	\$20,068,009	\$484,733
Condensed milk, sweetened—			
119	Pounds.....	197,887,310	551,320
120	Value.....	\$13,452,336	\$38,106
Condensed milk, unsweetened—			
121	Pounds.....	105,357,091	7,071,701
122	Value.....	\$6,169,325	\$434,627
123	All other condensed-milk factory products.....	\$146,348	\$12,000
124	All other products, not classified.....		
Equipment:			
125	Cream separators, number.....	73	9
126	Branch factories, number.....	9	
127	Separating or skimming stations, number.....	9	
Power:			
128	Number of establishments reporting.....	81	6
129	Total horsepower.....	6,403	173
Owned—			
Engines—			
Steam—			
130	Number.....	136	5
131	Horsepower.....	5,391	157
Gas or gasoline—			
132	Number.....	5	1
133	Horsepower.....	90	12
Water wheels—			
134	Number.....	7	
135	Horsepower.....	462	
Water motors—			
136	Number.....	2	
137	Horsepower.....	6	
Electric motors—			
138	Number.....	130	2
139	Horsepower.....	447	4
140	Other power, horsepower.....		
Rented—			
Electric motors—			
141	Number.....	2	
142	Horsepower.....	7	
143	Other kind, horsepower.....		
144	Furnished to other establishments, horsepower.....	2	

BUTTER, CHEESE, AND CONDENSED MILK.

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SUMMARY, BY STATES: 1905—Continued.

Illinois.	Michigan.	New York.	Ohio.	Pennsylvania.	Washington.	Wisconsin.	All other states.	
\$4,879,238	\$1,438,831	\$5,511,419	\$90,282	\$780,002	\$527,147	\$601,267	\$1,312,262	82
212,681,003	64,195,873	250,810,683	4,930,869	43,726,859	26,818,121	27,785,009	63,658,112	83
\$2,556,020	\$685,125	\$3,000,605	\$58,583	\$478,522	\$338,120	\$306,800	\$733,368	84
16,825,039	8,066,288	28,521,923	40,000	4,648,879		4,001,933	4,790,753	85
\$841,640	\$364,635	\$1,395,480	\$2,000	\$222,107		\$196,045	\$245,546	86
\$1,481,578	\$389,071	\$1,115,334	\$29,699	\$79,373	\$189,027	\$98,422	\$333,348	87
\$137,936	\$31,143	\$129,264	\$3,903	\$15,117	\$14,227	\$12,580	\$46,356	88
		\$100			\$346		\$100	89
\$7,830	\$652	\$13,100	\$99	\$8,138	\$995	\$1,136	\$3,637	90
\$17,949	\$16,078	\$13,937		\$11,281	\$724	\$2,191	\$6,331	91
\$6,691,111	\$1,674,427	\$6,868,449	\$148,963	\$1,257,509	\$738,688	\$843,957	\$1,792,843	92
\$82,231	\$12,033	\$109,889	\$9,900	\$53,400		\$54,105	\$33,144	93
286,987	19,400	477,003	49,500	5,000		259,072		94
\$65,244	\$3,933	\$97,726	\$9,900	\$1,400		\$53,165		95
	40,000	1,200		200,000			136,203	96
	\$8,000	\$240		\$50,000			\$30,744	97
60,000	1,667	199,414				7,500	29,536	98
\$4,500	\$100	\$11,602				\$940	\$2,400	99
90,000		320,823		2,000,000				100
\$90		\$321		\$2,000				101
240,185								102
\$12,002								103
\$395								104
\$18,736		\$53,833					\$5,400	105
98,740		554,883					60,000	106
\$9,874		\$51,087					\$5,400	107
354,475		91,533						108
\$8,862		\$2,746						109
								110
								111
								112
								113
								114
								115
								116
								117
\$6,590,144	\$1,662,394	\$6,704,727	\$139,063	\$1,204,109	\$738,688	\$789,852	\$1,754,299	118
47,511,291	27,084,725	78,122,450	266,250	19,114,512		10,255,856	14,980,906	119
\$3,416,927	\$1,620,732	\$5,432,211	\$15,975	\$1,176,196		\$727,117	\$1,025,072	120
43,654,721	352,269	23,278,307	1,680,968	513,300	13,841,906	1,124,366	13,839,553	121
\$3,173,217	\$11,662	\$1,231,215	\$123,088	\$23,098	\$738,688	\$62,735	\$670,995	122
	\$30,000	\$41,301		\$4,815			\$58,232	123
								124
13	6	22		6		7	10	125
6	1			1				126
5							3	127
15	0	25	3	6	4	4	12	128
1,711	465	2,392	263	559	180	180	480	129
38	9	38	4	0	6	6	18	130
1,449	445	1,814	200	543	175	168	440	131
1		1		1			1	132
15		12		16			35	133
		7						134
		462						135
		1			1			136
		1			5			137
75	1	19	32			1		138
247	20	101	63			12		139
								140
		1					1	141
		2					5	142
								143
2								144

FLOUR AND GRIST MILL PRODUCTS

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FLOUR AND GRIST MILL PRODUCTS.

By EMMONS K. ELLSWORTH.

This report contains a statistical discussion of the flour and grist mill industry of the United States for the census of 1905, which covers the calendar year 1904, with comparisons with previous censuses. An historical sketch and a description of the modern process of making flour will be found in the Census reports of 1880 and 1900.

Section 9 of the act of Congress of March 6, 1902, under which the census of 1905 was taken, provides that the enumeration shall not include the neighborhood industries. The products of the custom grist mills being consumed in the immediate vicinity of the mills, it was considered a neighborhood industry and omitted from the enumeration. All mills that did merchant grinding, however, were reported, although they may also have done exchange or custom grinding.

In order to prepare figures for the census of 1900 comparable with those for 1905, the reports for the 25,258 flour and grist mills reported in 1900 were re-examined, so as to segregate the returns for the merchant mills. It was found that 15,782 of the mills were engaged exclusively in custom grinding. The data for the remaining 9,476 were accordingly retabulated and placed in comparison with the 10,051 mills reported for the census of 1905. These figures are presented in Table 1, which is a comparative summary of the statistics for establishments engaged in merchant milling as returned at the censuses of 1900 and 1905.

TABLE 1.—Comparative summary, with per cent of increase: 1905 and 1900.

	CENSUS.		Per cent of increase.
	1905	1900	
Number of establishments.....	10,051	9,476	6.1
Capital.....	\$265,117,434	\$189,281,330	40.1
Salaried officials, clerks, etc., number.....	7,415	5,522	34.3
Salaries.....	\$7,352,357	\$5,257,991	39.8
Wage-earners, average number.....	39,110	32,226	21.4
Total wages.....	\$19,822,196	\$16,285,163	21.7
Men 16 years and over.....	38,572	31,719	21.6
Wages.....	\$19,675,724	\$16,154,827	21.8
Women 16 years and over.....	450	414	8.7
Wages.....	\$132,513	\$115,845	14.4
Children under 16 years.....	88	93	5.4
Wages.....	\$13,959	\$14,491	3.7
Miscellaneous expenses.....	\$19,756,711	\$9,591,182	106.0
Cost of materials used.....	\$619,971,161	\$428,116,757	44.8
Value of products.....	\$713,033,395	\$501,396,304	42.2

¹ Decrease.

Table 1 shows that the industry has made a substantial increase in all items excepting the number of

children employed and their wages, each of which shows a slight decrease. The establishments engaged in the industry have increased both in number and in size since 1900. At that time the average capital invested per establishment amounted to \$19,975, and an average of 3.4 wage-earners was employed, to whom the average amount paid in wages was \$1,719. The average cost of materials used was \$45,179, and the value of products \$52,912. At the census of 1905 the average amount invested in capital was \$26,377 for each establishment, a gain of 32.1 per cent over that of 1900. The average number of wage-earners increased to 3.9, and the amount paid in wages to \$1,972. The average cost of materials used in each establishment increased to \$61,683, a gain of 36.5 per cent, and the value of products to \$70,942, a gain of 34.1 per cent.

The number of wage-earners increased 6,884, or 21.4 per cent, and the wages paid \$3,537,033, or 21.7 per cent. Of a total of 39,110 wage-earners employed in 1905, 38,572 or 98.6 per cent were men. The character of the work is such that there is but little employment for women and children. Miscellaneous expenses increased 106 per cent, the largest percentage of increase of any of the items. The cost of material used increased \$191,854,404, or 44.8 per cent during the five years, and the value of products \$211,637,091, or 42.2 per cent.

Table 2 presents statistics for flour and grist mill establishments in 1900, for the merchant and for the custom mills reported at that census, and the percentage which each item forms of the total of the two branches combined.

TABLE 2.—Summary for the United States: 1900.

	Total.	Merchant mills.	Per cent of total.	Custom mills.	Per cent of total.
Number of establishments.....	25,258	9,476	37.5	15,782	62.5
Capital.....	\$218,714,104	\$189,281,330	86.5	\$29,432,774	13.5
Salaried officials, clerks, etc., number.....	5,790	5,522	95.4	268	4.6
Salaries.....	\$5,404,750	\$5,257,991	97.3	\$146,759	2.7
Wage-earners, average number.....	37,073	32,226	86.9	4,847	13.1
Total wages.....	\$17,703,418	\$16,285,163	92.0	\$1,418,255	8.0
Men 16 years and over.....	36,419	31,719	87.1	4,700	12.9
Wages.....	\$17,540,370	\$16,154,827	92.1	\$1,385,543	7.9
Women 16 years and over.....	497	414	83.3	83	16.7
Wages.....	\$142,911	\$115,845	81.1	\$27,066	18.9
Children under 16 years.....	157	93	59.2	64	40.8
Wages.....	\$20,137	\$14,491	72.0	\$5,646	28.0
Miscellaneous expenses.....	\$10,325,588	\$9,591,182	92.9	\$734,406	7.1
Cost of materials used.....	\$475,826,345	\$428,116,757	90.0	\$47,709,588	10.0
Value of products.....	\$500,719,063	\$501,396,304	89.4	\$59,322,759	10.6

In the revision of the figures for 1900 there were omitted, as custom or neighborhood mills, 15,782 establishments out of 25,258, or 62.5 per cent of the total number reported. Notwithstanding this large proportion of establishments the capital invested in the custom mills amounted to only 13.5 per cent of the total. The number of wage-earners was 13.1 per cent, the amount paid for wages 8 per cent, the cost of materials used 10 per cent, and the value of products 10.6 per cent.

These figures give some indication of the effect upon the statistics of the census of 1905 resulting from the omission of the custom mills from the establishments canvassed. In making such deductions, however, the increase in the price of grain and as a consequence in the value of the products must be borne in mind, as well as any tendency in this class of mills to increase or decrease during the five years from 1900 to 1905.

The effect upon the real milling operations or the production of wheat flour by the omission of such mills is less even than these figures indicate. The mills omitted are chiefly the small country gristmills, which grind for farmers in the neighborhood. Of the grain ground by the custom mills in 1900, wheat formed only 17.5 per cent of the total number of bushels of grain used.

The custom mills in 1900 showed an average investment of capital of \$1,865, employed an average of 1 wage-earner to each 3 establishments, and paid an average of \$90 as wages. They used an average of \$3,023 worth of materials, and the average value of products was \$3,759.

Table 3 is a comparative summary of the statistics for the industry for each decennial period from 1850 to 1900, with the percentages of increase for each decade.

TABLE 3.—COMPARATIVE SUMMARY, WITH PER CENT OF INCREASE FOR EACH DECADE: 1850 TO 1900.

	CENSUS.						PER CENT OF INCREASE.				
	1900	1890	1880	1870	1860	1850	1890 to 1900	1880 to 1890	1870 to 1880	1860 to 1870	1850 to 1860
Number of establishments.....	25,258	18,470	24,338	22,573	13,868	11,891	36.8	124.1	7.8	62.8	16.6
Capital.....	\$218,714,104	\$208,473,500	\$177,361,878	\$151,565,376	\$84,585,004	\$54,415,581	4.9	17.5	17.0	79.2	55.4
Salaried officials, clerks, etc., number.....	5,790	² 16,078	(³)	(³)	(³)	(³)	164.0	139.3	.....	.....	.....
Salaries.....	\$5,404,750	² \$5,897,340	(³)	(³)	(³)	(³)	139.3	.....	.....	.....	.....
Wage-earners, average number.....	37,073	47,403	58,407	58,448	27,682	23,310	121.8	118.8	10.1	111.1	18.8
Total wages.....	\$17,703,418	\$18,138,402	\$17,422,316	\$14,577,533	\$8,721,391	\$5,680,164	12.4	4.1	19.5	67.1	53.5
Men 16 years and over.....	36,419	46,889	58,239	57,795	27,626	23,260	122.3	119.5	0.8	109.2	18.8
Wages.....	\$17,540,370	\$18,046,465	(³)	(³)	(³)	(³)	12.8	.....	.....	.....	.....
Women 16 years and over.....	497	308	42	91	56	50	61.4	633.3	153.8	62.5	12.0
Wages.....	\$142,911	\$70,153	(³)	(³)	(³)	(³)	103.7	.....	.....	.....	.....
Children under 16 years.....	157	206	126	562	(³)	(³)	123.8	63.5	177.6	.....	.....
Wages.....	\$20,137	\$21,784	(³)	(³)	(³)	(³)	17.6	.....	.....	.....	.....
Miscellaneous expenses.....	\$10,325,588	\$13,162,037	(⁴)	(⁴)	(⁴)	(⁴)	121.6	.....	.....	.....	.....
Cost of materials used.....	\$475,826,345	\$434,152,290	\$441,545,225	\$367,392,122	\$208,497,309	\$113,036,698	9.6	11.7	20.2	76.2	84.5
Value of products.....	\$560,719,063	\$513,971,474	\$505,185,712	\$444,985,143	\$248,580,365	\$136,056,736	9.1	1.7	13.5	79.0	82.7

¹ Decrease.

² Includes proprietors and firm members, with their salaries; number only reported in 1900, but not included in this table.

³ Not reported separately.

⁴ Not reported.

It is impossible to separate the merchant and custom mills reported for censuses prior to 1900, and therefore the figures presented in Table 3 are those of the entire flour and grist mill industry, as published at each census.

The ten years from 1860 to 1870 witnessed the greatest increase shown during any decade. The proportionate increase, however, in the cost of materials and the value of products was greatest in the preceding one. Since 1870 there has been a steady decrease in the number of wage-earners employed, due to the constantly improved methods of manufacturing and of handling grain and manufactured products.

During the decade from 1870 to 1880 there was a slight percentage of increase in all items except the number of wage-earners, which showed a small decrease in the total and a large one in the number of women and children. From 1880 to 1890 there was a considerable decrease in the number of establishments, 5,868 less being reported in 1890 than in 1880, a loss of 24.1 per cent. Notwithstanding this decrease, the amount of capital invested increased \$31,111,622, or 17.5 per cent, and the value of

products \$8,785,762, or 1.7 per cent. The gain in value of products is more noteworthy when it is considered that there was a considerable drop in the price of grain, and consequently in the value of manufactured products in 1890 as compared with prices and values in 1880.

From 1890 to 1900 the number of establishments increased 6,788, a gain of 36.8 per cent. The capital invested increased \$10,240,604, or 4.9 per cent. The number of salaried officials and their salaries show a large decrease, which is due to the difference in methods of reporting these items at the two censuses. In 1890 the number of proprietors and firm members and their salaries were included with salaried officials and in 1900 the number only was reported and is not shown in this table. The number of wage-earners decreased 10,330, or 21.8 per cent; the amount paid for wages decreased \$434,984, or 2.4 per cent; but the value of products increased \$46,747,589, or 9.1 per cent.

Table 4 gives the rank of states and territories in 1900 and 1905 according to number of establishments, capital, wage-earners, wages, and value of products.

TABLE 4.—Rank of states and territories by establishments, capital, wage-earners, wages, and value of products, 1905 and 1900, with the states and territories arranged according to the value of products in 1905.

STATE OR TERRITORY.	RANK ACCORDING TO—									
	Number of establishments.		Capital.		Wage-earners and wages.				Value of products.	
					Average number.		Wages.			
	1905	1900	1905	1900	1905	1900	1905	1900	1905	1900
Minnesota.....	11	13	1	1	1	1	1	1	1	1
New York.....	2	2	2	2	2	3	3	3	2	2
Kansas.....	12	10	7	9	8	8	8	8	3	10
Ohio.....	3	3	4	4	3	2	3	2	4	3
Illinois.....	11	11	6	5	5	6	5	4	5	6
Pennsylvania.....	1	1	3	3	4	5	4	6	6	4
Missouri.....	4	4	5	6	6	7	7	7	7	7
Indiana.....	5	5	8	7	7	4	6	5	8	5
Wisconsin.....	7	9	10	8	12	10	10	10	9	8
Michigan.....	6	7	12	10	10	9	9	9	10	9
Tennessee.....	9	7	14	12	10	11	12	12	11	11
Texas.....	19	22	11	16	13	15	13	15	12	14
California.....	21	24	9	11	15	14	11	11	13	12
Kentucky.....	8	12	13	14	11	12	14	13	14	13
Washington.....	28	31	16	20	18	18	16	17	15	19
Virginia.....	10	8	17	17	14	16	18	18	16	16
Nebraska.....	14	15	15	15	16	15	15	16	17	17
Iowa.....	13	14	18	13	17	13	17	14	18	15
Oklahoma.....	29	36	20	32	22	28	20	29	19	28
Oregon.....	24	25	19	19	25	21	19	19	20	20
Georgia.....	22	26	28	27	21	20	29	26	21	23
Maryland.....	15	17	22	18	19	17	21	20	22	18
North Carolina.....	14	16	27	25	20	19	27	27	23	24
South Dakota.....	25	28	24	24	26	25	23	25	24	29
North Dakota.....	32	33	25	29	27	26	25	24	25	26
West Virginia.....	16	18	23	26	24	27	26	28	26	27
Colorado.....	33	34	26	22	20	26	24	22	27	25
New Jersey.....	17	19	21	21	23	22	22	21	28	22
Massachusetts.....	20	21	29	23	28	23	28	23	29	21
Maine.....	18	20	30	28	31	29	30	31	30	30
Arkansas.....	26	30	31	36	29	24	31	30	31	32
Vermont.....	23	23	33	30	32	30	32	35	32	31
Indian Territory.....	36	38	37	40	34	35	35	38	33	38
New Hampshire.....	30	27	35	35	38	31	37	34	34	33
Utah.....	31	32	34	33	36	32	38	33	35	36
Montana.....	41	41	36	37	40	40	39	36	36	40
Connecticut.....	27	29	32	31	33	30	34	32	37	35
Alabama.....	35	37	43	41	35	33	40	40	38	37
Idaho.....	38	38	38	38	39	39	36	39	39	42
Delaware.....	34	35	39	34	37	34	38	37	40	39
Rhode Island.....	39	39	42	39	43	38	43	41	41	34
Arizona.....	43	42	41	43	44	41	42	44	42	44
South Carolina.....	37	38	45	44	42	36	44	43	43	41
District of Columbia.....	44	43	46	45	41	37	41	42	44	43
Nevada.....	43	42	40	42	47	46	45	49	45	49
New Mexico.....	40	40	47	46	45	42	46	45	46	46
Wyoming.....	42	43	44	47	48	45	47	46	47	48
Florida.....	44	44	48	49	49	47	49	50	48	50
Mississippi.....	43	43	49	50	46	43	48	47	49	45
Louisiana.....	45	45	50	48	50	44	50	48	50	47

In this and all succeeding tables the statistics of the census of 1900, when used, are the revised figures and represent the merchant mills only. Tables 6 and 13 are comparative summaries of the statistics for 1900 and 1905, and Table 14 is a detailed summary of the industry for 1905. These tables present the statistics for the industry in a comprehensive manner and should be studied in connection with Table 4.

Minnesota ranked first at both censuses in all items, except number of establishments, in which it ranked thirteenth in 1900 and eleventh in 1905. New York ranked second in all items at the census of 1905 and second in all except wage-earners and wages in 1900, at which time it held third rank in these items. One of the greatest advances in rank was that for the state of Kansas. In 1900 this state, holding tenth rank, reported products valued at \$21,328,747; in 1905 the value of products increased to \$42,034,019, and the state advanced to third rank, passing the states of Ohio, Illinois, Pennsylvania, Missouri, Indiana, Wisconsin, and Michigan. In the other items, however, there was no advance at all comparable with that of value of products. In capital the state advanced only from ninth to seventh place, in the number of wage-earners and in the wages paid it remained unchanged in rank, and in number of establishments it dropped from tenth to twelfth place.

Of the other leading states, the changes in relative position are slight. The lack of correspondence between the rank with regard to value of products and that with regard to other items is notable. The first state in value of products, for example, was eleventh in number of establishments, and Pennsylvania ranked in these items sixth and first, respectively.

Table 5 presents the statistics for the milling industry for the census of 1905, by states, arranged in geographic groups.

TABLE 5.—COMPARATIVE SUMMARY, BY STATES AND

	STATE OR TERRITORY.	Number of estab- lish- ments.	Capital.	WAGE-EARNERS AND WAGES.		Miscellaneous expenses.
				Average number.	Wages.	
1	United States.....	10,051	\$265,117,434	39,110	\$19,822,196	\$19,756,711
2	North Atlantic division.....	2,794	53,850,378	7,185	3,537,656	3,093,189
3	Maine.....	161	1,422,671	234	108,382	57,941
4	New Hampshire.....	72	1,008,936	128	63,454	35,106
5	Vermont.....	109	1,319,735	185	91,464	54,155
6	Massachusetts.....	142	1,881,478	277	154,065	92,980
7	Rhode Island.....	22	389,479	45	23,771	13,357
8	Connecticut.....	86	1,335,822	167	85,874	41,010
9	New York.....	825	24,819,316	3,063	1,553,122	1,726,638
10	New Jersey.....	182	2,907,250	454	210,689	144,522
11	Pennsylvania.....	1,195	18,765,691	2,632	1,246,835	927,480
12	South Atlantic division.....	1,192	15,486,803	3,100	1,132,841	932,813
13	Delaware.....	47	484,171	137	58,425	48,415
14	Maryland.....	202	2,717,258	550	212,332	238,525
15	Virginia.....	365	5,503,101	957	348,681	223,190
16	West Virginia.....	194	2,622,906	400	183,050	116,063
17	North Carolina.....	234	1,990,346	519	160,329	98,822
18	South Carolina.....	29	205,619	60	18,414	7,708
19	Georgia.....	114	1,895,718	404	146,095	197,123
20	Florida.....	7	77,684	13	5,515	2,967
21	North Central division.....	4,378	139,198,885	21,207	11,165,276	11,558,198
22	Ohio.....	694	14,931,065	2,700	1,339,568	992,625
23	Indiana.....	566	11,906,761	2,289	1,091,428	793,605
24	Illinois.....	363	14,128,467	2,410	1,210,865	805,646
25	Michigan.....	405	7,654,270	1,508	766,690	541,168
26	Wisconsin.....	389	10,545,861	1,351	719,682	784,055
27	Minnesota.....	363	34,857,366	4,481	2,650,818	4,471,676
28	Iowa.....	276	5,216,059	770	399,108	322,960
29	Missouri.....	582	14,834,042	2,345	1,090,843	960,217
30	North Dakota.....	56	2,383,673	312	200,439	214,019
31	South Dakota.....	96	2,427,556	347	203,102	204,249
32	Nebraska.....	234	6,496,878	863	468,268	390,587
33	Kansas.....	354	13,816,887	1,831	1,024,465	1,077,391
34	South Central division.....	1,171	27,960,929	4,997	2,124,607	2,311,728
35	Kentucky.....	388	7,342,417	1,373	515,158	609,530
36	Tennessee.....	387	6,927,155	1,595	591,046	488,700
37	Alabama.....	40	371,666	159	53,887	29,716
38	Louisiana.....	3	50,200	4	1,738	2,495
39	Arkansas.....	91	1,352,669	263	103,632	70,058
40	Indian Territory.....	33	889,451	161	78,238	61,599
41	Oklahoma.....	75	3,242,032	456	253,256	239,532
42	Texas.....	154	7,785,339	986	527,652	810,098
43	Western division.....	500	28,347,086	2,540	1,824,774	1,844,294
44	Montana.....	12	991,191	67	57,096	88,552
45	Idaho.....	28	685,397	84	66,864	56,255
46	Wyoming.....	11	222,440	16	11,258	13,240
47	Colorado.....	52	2,325,671	244	202,778	272,570
48	New Mexico.....	13	139,420	29	14,352	6,384
49	Arizona.....	9	404,445	36	24,368	30,739
50	Utah.....	63	1,212,439	150	91,461	58,147
51	Nevada.....	9	411,368	17	16,098	20,333
52	Washington.....	76	6,490,492	613	409,828	466,378
53	Oregon.....	105	3,997,069	395	271,183	235,836
54	California.....	122	11,467,154	889	659,488	595,860
55	Not distributed by states ¹	16	263,353	81	37,042	16,489

¹ The statistics for 16 establishments, 7 in the District of Columbia and 9 in Mississippi, are included in the total, "not distributed by states," in order to avoid the disclosure of individual operations in certain particulars.

FLOUR AND GRIST MILL PRODUCTS.

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TERRITORIES AND GEOGRAPHIC DIVISIONS: 1905.

MATERIALS USED.				PRODUCTS.				
Total cost.	Wheat.		All other materials.	Total value.	Wheat flour.		All other products.	
	Bushels.	Cost.			Barrels.	Value.		
\$619,971,161	494,095,083	\$456,306,503	\$163,664,658	\$713,033,395	104,013,278	\$480,258,514	\$232,774,881	1
100,624,523	47,535,462	48,339,298	52,285,225	115,948,661	10,116,935	50,612,902	65,335,759	2
3,442,115	136,230	135,156	3,306,959	3,932,882	24,917	147,905	3,784,977	3
2,348,332	382,785	458,509	1,889,733	2,541,775	76,641	459,148	2,082,627	4
2,872,445	15,920	15,378	2,857,067	3,206,075	3,026	14,664	3,191,411	5
4,112,989	37,429	39,984	4,073,005	4,618,313	8,435	46,994	4,571,319	6
1,059,438	1,970	1,797	1,057,641	1,134,092	339	2,093	1,131,999	7
1,690,486	6,531	6,304	1,684,182	1,981,774	1,374	7,164	1,974,610	8
47,372,493	26,036,183	26,508,780	20,863,713	54,546,435	5,678,743	28,177,883	26,368,552	9
4,521,713	1,711,041	1,717,855	2,803,858	5,468,613	354,231	1,912,982	3,555,631	10
33,204,512	19,207,373	19,455,445	13,749,067	38,518,702	3,969,229	19,844,069	18,674,633	11
38,905,219	24,408,071	25,088,843	13,816,376	44,792,504	5,027,094	25,828,714	18,963,790	12
1,315,404	832,689	818,106	497,298	1,536,604	168,944	865,794	670,810	13
6,209,983	5,110,510	4,696,624	1,513,359	7,318,212	1,015,952	4,860,634	2,457,578	14
12,170,629	8,586,439	8,689,548	3,481,081	13,832,299	1,777,109	8,855,726	4,976,573	15
5,213,205	3,039,288	3,197,056	2,016,149	6,200,291	626,670	3,390,156	2,810,135	16
5,985,862	3,453,799	3,789,471	2,196,391	6,863,770	713,400	3,816,448	3,047,322	17
633,294	258,438	279,874	353,420	725,222	53,150	292,490	432,732	18
7,264,804	3,186,908	3,618,164	3,646,640	8,178,926	671,809	3,747,466	4,431,460	19
112,038			112,038	137,180			137,180	20
360,243,018	322,783,302	292,798,896	67,444,122	411,477,172	67,919,469	307,274,825	104,202,347	21
35,626,232	27,610,184	27,368,062	8,258,170	40,855,566	5,628,179	27,856,603	12,998,963	22
31,342,117	25,156,032	24,308,577	7,033,540	36,473,543	5,181,906	25,282,880	11,190,663	23
34,929,657	28,380,202	26,637,126	8,292,531	39,892,127	5,954,680	27,619,401	12,272,726	24
23,414,207	19,092,087	17,047,048	6,367,159	26,512,027	3,901,219	17,155,090	9,356,937	25
24,756,140	17,896,060	16,781,601	7,974,539	28,352,237	3,744,373	17,611,009	10,741,228	26
109,060,973	110,046,339	98,671,534	10,389,439	122,059,123	23,871,227	103,401,447	18,657,676	27
10,317,008	8,689,866	7,889,237	2,427,771	12,099,493	1,717,688	8,371,616	3,727,877	28
32,927,827	29,507,080	26,899,942	6,027,885	38,026,142	6,175,541	28,512,755	9,513,387	29
5,462,541	5,844,493	4,889,166	573,375	6,463,228	1,223,219	5,513,554	949,674	30
5,357,765	5,705,270	4,715,970	641,795	6,519,364	1,148,024	5,383,370	1,135,994	31
10,153,429	8,658,038	6,955,794	3,197,635	12,190,303	1,739,998	7,939,735	4,250,568	32
36,895,122	36,197,651	30,634,839	6,260,283	42,034,019	7,633,415	32,627,365	9,406,654	33
70,927,252	54,240,096	52,926,069	18,001,183	82,979,312	11,425,391	57,636,618	25,342,694	34
15,099,049	12,611,709	12,082,301	3,016,748	18,007,786	2,641,504	13,205,196	4,802,590	35
21,912,157	15,144,660	15,657,858	6,254,299	25,350,758	3,186,677	17,024,123	8,326,635	36
1,556,392	138,420	151,325	1,405,067	1,750,452	28,483	158,320	1,592,132	37
53,360			53,360	65,762			65,762	38
3,156,600	1,867,089	1,740,965	1,415,635	3,702,495	378,030	1,870,526	1,831,969	39
2,156,000	1,554,070	1,437,938	718,062	2,582,657	327,060	1,617,265	965,392	40
8,030,939	7,557,640	6,521,893	1,509,046	9,436,266	1,635,257	7,269,368	2,166,898	41
18,962,755	15,365,908	15,333,789	3,628,966	22,083,136	3,228,380	16,491,820	5,591,316	42
48,608,335	44,701,152	36,821,897	11,786,438	57,066,458	9,450,989	38,555,080	18,511,378	43
1,592,385	1,462,979	1,410,091	182,294	2,003,136	297,806	1,723,722	279,414	44
1,315,398	1,509,784	1,114,237	201,161	1,584,473	309,476	1,225,672	358,801	45
219,155	222,478	192,232	26,923	283,653	43,758	226,754	56,899	46
4,797,409	4,635,278	3,855,777	941,632	5,783,421	970,088	4,377,477	1,405,944	47
311,857	250,676	239,496	72,361	388,124	51,068	268,111	120,013	48
641,201	358,747	380,670	260,531	743,124	72,898	422,111	321,013	49
2,043,054	2,251,616	1,892,085	150,969	2,425,791	453,804	1,963,322	462,469	50
431,817	237,190	228,940	202,877	520,969	47,456	256,978	263,991	51
12,771,390	13,887,162	10,743,311	2,028,079	14,663,612	3,024,287	11,154,336	3,509,282	52
7,352,430	8,059,304	6,223,471	1,128,959	8,467,613	1,740,849	6,324,932	2,142,681	53
17,132,239	11,825,938	10,541,587	6,590,652	20,202,542	2,439,499	10,611,671	9,590,871	54
662,814	367,000	331,500	331,314	769,288	73,400	350,375	418,913	55

Of the different geographic divisions the North Central was by far the most important in all items. There was reported for this group 43.6 per cent of the total number of establishments, 52.5 per cent of the capital, 54.2 per cent of the number of wage-earners, 56.3 per cent of the wages, 58.1 per cent of the cost of materials, and 57.7 per cent of the value of products for the United States.

The North Atlantic division was next in importance, and reported 27.8 per cent of the total number of establishments, 20.3 per cent of the capital, 18.4 per cent of the number of wage-earners, 17.8 per cent of wages, 16.2 per cent of the cost of materials, and 16.3 per cent of the value of products.

The South Central division was next in importance, and of the other two groups the South Atlantic division reported a larger number of establishments and wage-earners, but the Western exceeded the South Atlantic in capital, wages, cost of materials, and value of products.

As shown by Tables 5 and 13, Minnesota led all the other states in the amount of capital invested, reporting 13.1 per cent of the total for the United States, a gain over 1900 of \$11,141,464, or 47 per cent, and New York represented 9.4 per cent of the total, with a gain over 1900 of \$4,850,394, or 24.3 per cent. Pennsylvania with 7.1 per cent of the total capital, showed an increase over 1900 of \$3,779,762, or 25.2 per cent. In Ohio the capital invested in 1905 was 5.6 per cent of the total, and the increase over 1900 was \$4,158,261, or 38.6 per cent.

In number of wage-earners employed and amount paid for wages the same states led, the only difference being that Ohio held third place and Pennsylvania fourth. Minnesota gave employment to 4,481 wage-earners, or 11.5 per cent of the total, paying in wages the sum of \$2,650,818, or 13.4 per cent of the total for the United States. New York employed 7.8 per cent of the total number of wage-earners and paid 7.8 per cent of the total wages. Ohio reported 6.9 per cent of the wage-earners and paid 6.8 per cent of the total wages. Pennsylvania gave employment to 2,632 wage-earners, or 6.7 per cent of the total, and paid in wages 6.3 per cent of the total.

In Minnesota the value of products reached the sum of \$122,059,123, or 17.1 per cent of the total for the United States. The increase since 1900, the largest reported by any state, was \$39,071,069, a gain of 47.1 per cent. New York reported 7.6 per cent of the total value of products. In amount of actual increase New York was third, the gain over 1900 amounting to \$18,615,942, or 51.8 per cent. Kansas was third in value of products, with 5.9 per cent of the total, but second in amount and first in percentage of increase. Although the increase, \$20,705,272, between the censuses of 1900 and 1905 was less than that shown in Minnesota, the percentage of increase

was much greater, being 97.1 per cent. The value of products for Ohio was 5.7 per cent of the total for the United States, and the increase in value over 1900 \$5,778,013, or 16.5 per cent.

The percentage of increase in value of products for this industry is, however, misleading because of the fact that in 1904 the prices of grain, and consequently of products manufactured from grain, were considerably higher than in 1900. For this reason the percentages of increase in values are greater than those for quantities and do not represent the true increase in the milling industry. An illustration of this is found in Colorado (Table 13), where the quantity of wheat used in 1905 was 158,175 bushels less than that in 1900, the quantity of corn 639,936 bushels less, and of oats and other grain 439,919 bushels less; but the cost of the grain used in 1905 was greater than that of 1900 by \$1,037,224 and the value of products greater by \$1,342,401.

Table 6 gives the materials by kind, quantity, and cost and the products by kind, quantity, and value for the United States in 1900 and 1905.

TABLE 6.—*Materials used, by kind, quantity, and cost; and products, by kind, quantity, and value: 1905 and 1900.*

	1905	1900	Per cent of increase.
Materials used, total cost.....	\$619,971,161	\$428,116,757	44.8
Grain:			
Total bushels.....	754,945,729	729,061,820	3.6
Total cost.....	\$585,065,067	\$399,726,710	46.4
Wheat—			
Bushels.....	494,095,083	471,306,986	4.8
Cost.....	\$456,306,503	\$306,101,028	49.1
Corn—			
Bushels.....	178,217,321	180,573,076	11.3
Cost.....	\$91,758,882	\$67,817,217	35.3
Rye—			
Bushels.....	11,480,370	10,088,381	13.8
Cost.....	\$7,619,473	\$4,943,126	54.1
Buckwheat—			
Bushels.....	6,531,305	5,490,156	19.0
Cost.....	\$3,948,160	\$2,891,616	36.5
Barley—			
Bushels.....	18,628,552	10,067,348	85.0
Cost.....	\$8,847,684	\$3,748,822	136.0
Oats—			
Bushels.....	45,381,009	47,175,766	13.8
Cost.....	\$16,199,579	\$12,689,504	27.7
Other grain—			
Bushels.....	612,089	4,360,107	186.0
Cost.....	\$384,786	\$1,535,397	174.9
Barrels (purchased).....	\$4,545,074	\$4,618,715	11.6
Sacks (purchased).....	\$16,807,001	\$11,431,060	47.0
Cooperage stock, and cloth and paper for sacks.....	\$1,613,332	\$1,551,802	4.0
All other materials.....	\$11,940,687	\$10,788,470	10.7
Products, total value.....	\$713,033,395	\$501,396,304	42.2
Wheat flour:			
Barrels.....	2104,013,278	99,763,777	4.3
Value.....	\$480,258,514	\$333,997,686	43.8
Rye flour:			
Barrels.....	1,503,100	1,443,339	4.1
Value.....	\$5,892,108	\$4,145,565	42.1
Corn meal and corn flour:			
Barrels.....	23,624,693	27,838,811	115.1
Value.....	\$56,368,556	\$52,167,739	8.1
Buckwheat flour:			
Pounds.....	175,354,062	143,190,724	22.5
Value.....	\$4,379,359	\$3,190,152	37.3
Barley meal:			
Pounds.....	68,508,655	91,275,646	124.9
Value.....	\$922,884	\$963,710	14.2
Hominy and grits:			
Pounds.....	756,861,398	291,726,145	159.4
Value.....	\$8,455,420	\$2,567,084	229.4
Feed:			
Pounds.....	6,913,572,697	7,986,159,122	113.4
Value.....	\$76,096,127	\$63,011,421	20.8
Offal:			
Pounds.....	8,937,251,392	6,328,815,746	41.2
Value.....	\$76,105,532	\$36,679,196	107.5
All other products.....	\$4,554,895	\$4,673,751	12.5

¹Decrease.

²Includes 404,928 barrels of Graham flour.

At the census of 1905 there was reported for the United States a total of 754,945,729 bushels of all kinds of grain at a cost of \$585,065,067, an increase in quantity over 1900 of 25,883,939 bushels, or 3.5 per cent, while the cost increased \$185,338,357, or 46.4 per cent. Of the total number of bushels of grain of all kinds, 494,095,083, or 65.4 per cent, was wheat, the cost of which was \$456,306,503, or 78 per cent of the total expenditure for grain. The quantity of wheat used was thus nearly twice and its cost more than three times that of all of the other kinds of grain used in the mills of the country. The quantity of wheat reported in 1905 was 22,788,097 bushels greater than that for 1900, a gain of only 4.8 per cent, but its cost increased \$150,205,475, or 49.1 per cent. Corn, the grain next in importance, decreased in quantity used, 2,355,755 bushels, or 1.3 per cent. The cost, however, increased \$23,941,665, or 35.3 per cent. There was also a smaller quantity of oats used in 1905 than in 1900, although the cost increased \$3,510,075. There was a small increase in the quantity of rye, buckwheat, and barley used and a decrease in the amount of "other grain," under which is classed all kinds of grain not specifically mentioned.

Of the total value of products reported in 1905, amounting to \$713,033,395, the value of wheat flour formed 67.4 per cent and the value of offal, the principal part of which is the by-product of the manufacture of wheat flour, was 10.7 per cent. The quantity of wheat flour manufactured in 1905 shows an increase over that in 1900 of 4,249,501 barrels, or 4.2 per cent, while its value increased \$146,260,828, or 43.8 per cent. Of the other products, rye and buckwheat flour show small increases in quantity, horiny and grits an increase of more than 150 per cent, while the quantities of barley meal, corn meal and flour, and feed show small decreases.

Table 7 gives the number of establishments and the value of products for all cities reporting flour and grist mill products, valued at \$3,000,000 and over in 1905.

TABLE 7.—*Cities reporting flour and grist mill products valued at \$3,000,000 and over: 1905.*

CITY.	Number of establishments.	Value of products.
Minneapolis, Minn.	12	\$62,754,446
New York, N. Y.	8	11,085,674
Buffalo, N. Y.	9	9,807,906
Milwaukee, Wis.	6	6,320,428
Kansas City, Mo.	10	5,515,749
Seattle, Wash.	6	4,593,566
Indianapolis, Ind.	9	4,428,664
Louisville, Ky.	5	4,373,890
Nashville, Tenn.	4	4,242,491
St. Louis, Mo.	9	3,974,437
Chicago, Ill.	5	3,919,276
Topeka, Kans.	9	3,745,130
Toledo, Ohio	8	3,676,290
Superior, Wis.	3	3,617,819
Alton, Ill.	3	3,460,893
San Francisco, Cal.	9	3,422,672
Decatur, Ill.	5	3,407,504
Rochester, N. Y.	10	3,222,257
Detroit, Mich.	7	3,034,388

Situated at the door of the great northwestern wheat belt and with the Falls of St. Anthony furnishing an abundance of waterpower, Minneapolis has become the chief milling center of the country. Some of the largest mills in the world are located there. At the census of 1905 there were 12 mills in operation in that city, the total value of production of which amounted to \$62,754,446, an average value of products per establishment of over \$5,000,000. The value of products for Minneapolis was over five and a half times that of the next largest city, and greater than the combined output of the 11 next largest cities. New York city was second in rank, with 8 establishments, and products valued at \$11,085,674. Buffalo was third, with 9 mills, and products amounting to \$9,807,906; Milwaukee fourth, and Kansas City fifth.

Wheat flour.—Table 8 shows, by states, the number of mills manufacturing wheat flour, classified according to the annual production in barrels.

TABLE 8.—*Classification of mills according to annual production of wheat flour: 1905.*

STATE OR TERRITORY.	Total.	Less than 1,000 barrels.	1,000 to 4,999 barrels.	5,000 to 19,999 barrels.	20,000 to 99,999 barrels.	100,000 barrels or more.
United States.....	7,685	1,272	3,502	2,123	622	166
Alabama.....	11	3	7	1	—	—
Arizona.....	9	—	4	4	1	—
Arkansas.....	81	4	54	21	2	—
California.....	83	8	31	22	18	4
Colorado.....	48	5	12	17	13	1
Connecticut.....	7	7	—	—	—	—
Delaware.....	46	7	31	7	1	—
District of Columbia.....	2	—	—	—	—	—
Georgia.....	69	22	35	5	6	1
Idaho.....	28	—	10	13	5	—
Illinois.....	302	48	106	89	47	12
Indian Territory.....	23	3	8	9	3	—
Indiana.....	507	56	213	199	32	7
Iowa.....	234	58	98	62	13	3
Kansas.....	248	19	55	75	78	21
Kentucky.....	358	53	189	99	14	3
Maine.....	15	8	5	2	—	—
Maryland.....	182	39	98	39	5	1
Massachusetts.....	8	6	2	—	—	—
Michigan.....	367	50	173	110	27	7
Minnesota.....	338	20	110	130	44	34
Mississippi.....	2	2	—	—	—	—
Missouri.....	525	66	282	125	42	10
Montana.....	12	—	4	4	4	—
Nebraska.....	222	19	89	97	16	1
Nevada.....	9	2	3	4	—	—
New Hampshire.....	8	7	—	—	1	—
New Jersey.....	94	27	42	24	1	—
New Mexico.....	13	2	5	6	—	—
New York.....	304	112	92	64	22	14
North Carolina.....	213	48	126	37	2	—
North Dakota.....	55	1	12	26	13	3
Ohio.....	659	40	353	226	34	6
Oklahoma.....	63	5	10	22	25	1
Oregon.....	94	7	41	35	9	2
Pennsylvania.....	870	245	457	139	23	6
Rhode Island.....	5	5	—	—	—	—
South Carolina.....	23	6	15	2	—	—
South Dakota.....	92	4	20	53	14	1
Tennessee.....	361	42	190	113	11	5
Texas.....	125	7	30	48	32	8
Utah.....	63	2	29	29	3	—
Vermont.....	11	10	1	—	—	—
Virginia.....	330	56	201	59	12	2
Washington.....	65	4	7	26	22	6
West Virginia.....	173	56	90	19	8	—
Wisconsin.....	317	80	154	59	17	7
Wyoming.....	11	1	8	2	—	—

Of the mills producing 100,000 barrels or more, Minnesota had the largest number, 34; Kansas was next, with 21; New York third, with 14; Illinois fourth, with 12; and Missouri fifth, with 10. These 5 states reported more than one-half of the mills of this size in the United States, the others being distributed among

20 of the remaining states. In the next larger class of mills Kansas had 78; Illinois, 47; Minnesota, 44; and Missouri, 42. Of the mills third in size, Ohio reported the largest number, 226; Indiana, 199; Pennsylvania, 139; Minnesota, 130; and Missouri, 125. In the next class Pennsylvania was first, with 457; Ohio second, with 353; Missouri third, with 282; Indiana fourth, with 213; and Virginia fifth, with 201. Of the small sized mills, the largest number was in Pennsylvania, which state reported 245. New York was next, with 112. Pennsylvania reported the largest number of mills of all sizes, there being 870 in the state. Ohio was second, with 659; Missouri third, with 525; and Indiana fourth, with 507. Minnesota, which led all the other states in the production of wheat flour, ranked eighth in the number of establishments manufacturing wheat flour. There were 2 states, Florida and Louisiana, for which no merchant mills grinding wheat flour were reported.

Of the 10,051 mills reporting in 1905, 7,684, or 76.5 per cent, were engaged to some extent in the manufacture of wheat flour. These mills used 494,095,083 bushels of wheat, the cost of which was \$456,306,503, an average of 92 cents per bushel. From this was manufactured 104,013,278 barrels of flour, valued at \$480,258,514, or \$4.62 per barrel, each requiring an average of 4.75 bushels of wheat. In 1900 the cost of wheat averaged 65 cents per bushel and the value of wheat flour \$3.35 per barrel, the quantity of wheat used for each barrel of flour being practically the same as in 1905. The cost of wheat per bushel and the value per barrel have thus increased about 40 per cent in the last five years.

Minnesota ranked first in the production of wheat flour at both censuses. In 1905 there was an increase of 11 mills over the number reported in 1900. The number of bushels of wheat used by these mills was an increase of 7,448,505 bushels, or 7.3 per cent, and the cost increased \$32,211,700, or 48.5 per cent. The increase in number of barrels of flour manufactured was 1,229,394, or 5.4 per cent, and in its value, \$31,231,383, or 43.3 per cent.

Kansas ranked second in 1905, advancing from ninth place in 1900. There were 10 more establishments reported, and the quantity of wheat used was

12,869,337 bushels, or 55.2 per cent greater than in 1900, the cost increasing \$17,544,380, or 134 per cent. The quantity of flour manufactured increased 2,624,651 barrels, or 52.4 per cent, and the value \$17,611,387, or 117.3 per cent. Missouri held sixth rank in 1900 and advanced to third in 1905, and New York, which was fifth in 1900, advanced to fourth in 1905. Both states made substantial gains in the quantity of flour manufactured.

Ohio, which was second in rank in 1900, was fifth in 1905. The state shows a considerable decrease in quantity of flour which dropped from 7,113,343 barrels in 1900 to 5,628,179 in 1905, although its value increased. Illinois was third in 1900 and dropped to sixth place in 1905, due rather to the increase in other states than to a decrease in its own products, as the state manufactured practically the same number of barrels in 1905 as in 1900. Indiana shows a decrease of 551,402 barrels and drops from fourth place in 1900 to seventh in 1905. Pennsylvania also shows a loss, the difference being 481,603 barrels, and the state drops from seventh to eighth place. Of the other states Wisconsin, Michigan, Tennessee, California, Iowa, Oregon, Maryland, Colorado, Utah, New Jersey, and Arkansas show decreases; and Texas, Kentucky, Washington, Virginia, Nebraska, Oklahoma, North Dakota, South Dakota, North Carolina, Georgia, and West Virginia show increases in the quantity of flour manufactured.

The average cost of wheat ranged from 77 cents per bushel in Oregon and Washington to \$1.14 in Georgia, while the average price of flour ranged from \$3.63 in Oregon to \$5.58 in Georgia, the location of the mills in reference to the wheat growing states and the cost of transportation governing the prices to a considerable extent.

Table 9 is a comparative summary of the manufacture of wheat flour, showing the number of such establishments, the quantity of wheat used and its cost, and the number of barrels of flour manufactured and its value, by states and territories, in the order of their rank. It also gives the average value per barrel of flour, number of bushels of wheat required to make a barrel of flour, and the average cost per bushel of wheat for the various states.

TABLE 9.—COMPARATIVE SUMMARY OF MERCHANT MILLS IN ORDER OF THEIR RANK AS PRODUCERS OF WHEAT FLOUR, BY STATES AND TERRITORIES HAVING A PRODUCT OF \$1,000,000 AND OVER: 1905 AND 1900.

STATE OR TERRITORY.	Census.	Number of establishments.	RAW MATERIAL, WHEAT.		PRODUCTS, FLOUR.		Rank.	Average value per barrel.	Average bushels of wheat per barrel.	Average cost per bushel.
			Bushels.	Cost.	Barrels.	Value.				
United States.....	1905	7,685	494,095,083	\$456,306,503	104,013,278	\$480,258,514		\$4.62	4.75	\$0.92
	1900	7,442	471,306,986	306,101,028	99,763,777	333,997,686		3.35	4.72	.65
Minnesota.....	1905	338	110,046,339	98,671,534	23,871,227	103,401,447	1	4.33	4.61	.90
	1900	327	102,397,834	66,459,834	22,641,833	72,170,064	1	3.19	4.53	.65
Kansas.....	1905	248	36,197,651	30,634,839	7,633,415	32,627,365	2	4.27	4.74	.85
	1900	238	23,328,314	13,090,459	5,008,704	15,015,978	9	3.00	4.66	.56
Missouri.....	1905	525	29,507,080	26,899,942	6,175,541	28,512,755	3	4.62	4.78	.91
	1900	508	24,028,746	15,427,351	5,022,943	17,029,182	6	3.39	4.78	.64
New York.....	1905	304	26,036,183	26,508,780	5,678,743	28,177,883	4	4.96	4.58	1.02
	1900	275	23,160,955	17,169,976	5,107,418	18,969,427	5	3.64	4.53	.74
Ohio.....	1905	659	27,610,184	27,368,062	5,628,179	27,856,603	5	4.95	4.91	.99
	1900	632	33,753,826	23,528,633	7,113,343	25,140,728	2	3.53	4.75	.70
Illinois.....	1905	302	28,380,202	26,637,126	5,954,680	27,619,401	6	4.64	4.77	.94
	1900	306	28,198,219	18,960,992	5,932,815	20,320,387	3	3.43	4.75	.67
Indiana.....	1905	507	25,156,032	24,308,577	5,181,906	25,282,880	7	4.88	4.85	.97
	1900	483	28,765,523	18,911,006	5,733,308	20,069,146	4	3.50	5.02	.66
Pennsylvania.....	1905	870	19,207,373	19,455,445	3,969,229	19,844,069	8	5.00	4.84	1.01
	1900	836	21,277,776	15,088,596	4,450,832	15,959,768	7	3.58	4.78	.71
Wisconsin.....	1905	317	17,896,060	16,781,601	3,744,373	17,611,009	9	4.70	4.78	.94
	1900	321	21,784,604	14,490,187	4,638,698	15,082,162	8	3.25	4.70	.67
Michigan.....	1905	367	19,092,087	17,047,048	3,901,219	17,155,090	10	4.40	4.89	.89
	1900	372	19,197,782	13,372,561	4,050,329	14,349,601	10	3.54	4.74	.70
Tennessee.....	1905	361	15,144,660	15,657,858	3,186,677	17,024,123	11	5.34	4.75	1.03
	1900	333	16,035,045	11,240,604	3,339,040	12,590,493	11	3.77	4.80	.70
Texas.....	1905	125	15,365,908	15,333,789	3,228,380	16,491,820	12	5.11	4.76	1.00
	1900	99	12,177,919	8,013,717	2,546,477	8,824,717	12	3.47	4.78	.66
Kentucky.....	1905	358	12,611,709	12,082,301	2,641,504	13,205,196	13	5.00	4.77	.96
	1900	318	12,080,158	8,158,644	2,527,699	9,176,202	13	3.63	4.78	.68
Washington.....	1905	65	13,887,162	10,743,311	3,024,287	11,154,330	14	3.69	4.59	.77
	1900	53	8,772,778	4,250,327	1,853,271	4,719,797	19	2.55	4.73	.48
California.....	1905	83	11,825,938	10,541,587	2,439,499	10,611,671	15	4.35	4.85	.89
	1900	85	12,744,275	7,623,512	2,653,935	7,928,449	14	2.99	4.80	.60
Virginia.....	1905	330	8,586,439	8,689,548	1,777,169	8,855,726	16	4.98	4.83	1.01
	1900	314	7,202,821	5,062,119	1,508,929	5,580,887	16	3.70	4.77	.70
Iowa.....	1905	234	8,689,866	7,889,237	1,717,688	8,371,616	17	4.87	5.06	.91
	1900	264	11,604,496	6,494,961	2,273,924	7,632,378	15	3.36	5.10	.56
Nebraska.....	1905	222	8,658,038	6,955,794	1,739,998	7,939,735	18	4.56	4.98	.80
	1900	219	8,404,370	4,402,921	1,666,390	5,150,851	18	3.99	5.04	.52
Oklahoma.....	1905	63	7,557,640	6,521,893	1,635,257	7,269,368	19	4.45	4.62	.86
	1900	36	4,393,075	2,377,078	947,963	2,769,354	23	2.92	4.63	.54
Oregon.....	1905	94	8,059,304	6,223,471	1,740,849	6,324,932	20	3.63	4.63	.77
	1900	98	8,603,442	4,280,159	1,778,799	4,620,351	20	2.60	4.84	.50
North Dakota.....	1905	55	5,844,493	4,889,166	1,223,219	5,513,554	21	4.51	4.78	.84
	1900	57	4,667,032	2,673,526	997,196	3,177,946	21	3.19	4.68	.57
South Dakota.....	1905	92	5,705,270	4,715,970	1,148,024	5,383,370	22	4.69	4.97	.83
	1900	84	4,279,664	2,332,717	897,026	2,643,678	24	2.95	4.77	.55
Maryland.....	1905	182	5,110,510	4,696,624	1,015,952	4,890,634	23	4.78	5.03	.92
	1900	164	6,744,692	4,744,120	1,401,948	5,157,198	17	3.68	4.81	.70
Colorado.....	1905	48	4,635,278	3,855,777	970,088	4,377,477	24	4.51	4.78	.83
	1900	42	4,793,453	2,675,409	995,592	3,015,051	22	3.03	4.81	.56
North Carolina.....	1905	213	3,453,799	3,789,471	713,400	3,816,448	25	5.35	4.84	1.10
	1900	202	2,900,736	2,274,943	594,617	2,542,392	26	4.28	4.88	.78
Georgia.....	1905	69	3,186,908	3,618,164	671,809	3,747,466	26	5.58	4.74	1.14
	1900	58	2,646,456	2,142,404	596,020	2,622,708	25	4.40	4.44	.81
West Virginia.....	1905	173	3,039,288	3,197,056	626,670	3,390,156	27	5.41	4.85	1.05
	1900	169	2,940,951	2,057,884	590,917	2,284,571	27	3.87	4.98	.70
Utah.....	1905	63	2,251,616	1,892,085	453,804	1,963,322	28	4.33	4.96	.84
	1900	64	2,324,135	1,124,820	466,474	1,275,359	30	2.73	4.98	.48
New Jersey.....	1905	94	1,711,041	1,717,855	354,231	1,912,982	29	5.40	4.83	1.00
	1900	107	2,222,002	1,663,392	446,116	1,787,025	28	4.01	4.98	.75
Arkansas.....	1905	81	1,867,689	1,740,965	378,030	1,870,526	30	4.95	4.94	.93
	1900	76	2,594,857	1,588,104	524,122	1,709,170	29	3.38	4.95	.61
All other states.....	1905	243	7,773,336	7,241,627	1,588,231	8,085,560		5.09	4.89	.93
	1900	302	7,081,650	4,420,072	1,457,039	5,046,666		3.46	4.86	.62

Corn products.—Table 10 is a comparative summary of the quantity and cost of corn ground, by states and territories, in the order of their importance.

TABLE 10.—Comparative summary of states and territories grinding over 1,000,000 bushels of corn: 1905 and 1900.

STATE OR TERRITORY.	Census.	CORN.	
		Bushels.	Cost.
United States.....	1905 1900	178,217,321 180,573,076	\$91,758,882 67,817,217
New York.....	1905 1900	19,747,956 17,843,753	11,030,517 7,346,287
Pennsylvania.....	1905 1900	14,658,274 13,001,739	8,109,064 5,284,115
Illinois.....	1905 1900	12,816,823 11,373,625	5,746,949 3,507,251
Indiana.....	1905 1900	11,177,094 12,882,582	5,182,341 4,220,079
Ohio.....	1905 1900	10,443,366 10,640,919	5,027,378 3,676,025
Tennessee.....	1905 1900	9,062,184 8,853,032	4,801,171 3,704,164
Kansas.....	1905 1900	8,790,875 11,187,422	3,783,639 3,338,340
Missouri.....	1905 1900	8,013,969 9,152,031	3,615,528 3,171,388
Michigan.....	1905 1900	6,256,432 6,407,395	3,121,460 2,359,441
Massachusetts.....	1905 1900	6,247,591 9,117,277	3,649,038 3,845,799
Georgia.....	1905 1900	5,138,934 3,792,211	3,211,483 1,863,496
Virginia.....	1905 1900	5,086,297 4,457,120	2,769,322 1,924,536
Nebraska.....	1905 1900	4,643,455 3,149,536	1,845,619 826,382
Maine.....	1905 1900	4,545,168 4,375,896	2,749,466 1,987,287
Kentucky.....	1905 1900	4,219,724 4,478,660	2,100,636 1,860,036
Texas.....	1905 1900	4,182,282 2,973,153	2,177,086 1,044,031
Vermont.....	1905 1900	4,118,390 4,188,932	2,401,439 1,731,841
New Jersey.....	1905 1900	3,523,460 4,055,870	2,014,932 1,651,951
Wisconsin.....	1905 1900	3,430,171 4,191,433	1,592,454 1,364,969
North Carolina.....	1905 1900	2,966,052 2,679,432	1,825,724 1,313,421
New Hampshire.....	1905 1900	2,807,347 3,172,036	1,641,162 1,324,178
West Virginia.....	1905 1900	2,791,879 1,658,156	1,549,151 714,681
Minnesota.....	1905 1900	2,646,411 3,452,826	1,159,531 1,037,106
Iowa.....	1905 1900	2,463,049 4,198,690	1,011,436 1,108,167
Arkansas.....	1905 1900	2,400,269 1,310,308	1,216,047 506,863
Connecticut.....	1905 1900	2,289,271 2,544,284	1,317,763 1,060,936
Alabama.....	1905 1900	2,258,428 1,977,325	1,291,547 906,722
Oklahoma.....	1905 1900	2,206,932 1,255,589	885,218 314,413
Maryland.....	1905 1900	1,898,891 2,184,949	993,781 830,624
Rhode Island.....	1905 1900	1,590,601 2,526,591	826,905 1,061,121
All other states.....	1905 1900	5,795,746 7,490,304	3,111,095 2,931,567

In the manufacture of wheat products the body of the wheat is readily separated from the outer coverings in the milling processes. The former produces flour, practically all of which enters food for human consumption, while the latter, which are known as bran and middlings and shown in these statistics as offal, are used for cattle feed. With corn, on the other hand, there is no way of determining the quantity of products manufactured from it that enters into human food. Owing to the fact, too, that other grains, such as oats, rye, barley, etc., are ground with corn in the production of feed, it is impossible to determine the exact value of the products manufactured from corn.

There were reported as ground in the mills of the United States during the census year a total of 178,217,321 bushels of corn, valued at \$91,758,882, an average cost of 51 cents per bushel. In 1900 there were 180,573,076 bushels reported, costing \$67,817,217, an average of 38 cents per bushel. There was a decrease in quantity of 2,355,755 bushels, or 1.3 per cent, but an increase in the cost of \$23,941,665, or 35.3 per cent.

New York ranked first in quantity of corn used, with 19,747,956 bushels, a gain of 1,904,203 bushels over that reported in 1900; Pennsylvania, second, with a gain of 1,656,535 bushels; and Illinois, third, with a gain of 1,443,198 bushels. Indiana and Ohio, which were fourth and fifth, show decreases in quantity. Of the other states, Tennessee, Georgia, Virginia, Nebraska, Maine, Texas, North Carolina, West Virginia, Arkansas, Alabama, and Oklahoma show increases, and Kansas, Missouri, Michigan, Massachusetts, Kentucky, Vermont, New Jersey, Wisconsin, New Hampshire, Minnesota, Iowa, Connecticut, Maryland, and Rhode Island show decreases in quantities used.

There has been a considerable increase in imports of flour during the five years, although the amount imported was small compared with the amount manufactured in this country. In 1901 the imports were 642 barrels, valued at \$3,430. In 1902 they dropped to 420 barrels, valued at \$2,610. The amount imported in 1903 was slightly larger than the previous year, and that for 1904 increased to 46,851 barrels, the largest quantity imported during any of the five years. In 1905 the number of barrels decreased to 40,801, while the value increased.

The exports of flour and grist mill products for 1901 were valued at \$72,918,834. During the five years the fluctuations were considerable. In 1903 the valuation reached the maximum \$76,096,402 and in 1905 the minimum.

The value of the wheat flour formed by far the greater part of the value of the flour and grist mill exports for each of the years shown, amounting in 1905 to \$40,176,136, or 95.6 per cent of the total.

Imports and exports.—Table 11 shows the imports of wheat flour and Table 12 the exports of flour and grist mill products for each year from 1901 to 1905, inclusive, as presented in the annual reports of the Bureau of Statistics of the Department of Commerce and Labor.

TABLE 11.—Imports of flour for each year: 1901 to 1905.¹

	1905	1904	1903	1902	1901
Wheat flour:					
Barrels.....	40,801	46,851	601	420	642
Value.....	\$176,513	\$164,100	\$4,489	\$2,610	\$3,430

¹ "Commerce and Navigation of the United States," Bureau of Statistics, Department of Commerce and Labor.

TABLE 12.—Exports of flour and grist mill products for each year: 1901 to 1905.¹

	1905	1904	1903	1902	1901
Total value.....	\$42,031,631	\$70,964,020	\$76,096,402	\$67,679,615	\$72,918,834
Corn meal:					
Barrels.....	371,565	590,774	451,506	348,034	896,877
Value.....	\$1,113,295	\$1,691,669	\$1,382,127	\$1,046,643	\$2,065,432
Rye flour:					
Barrels.....	4,721	3,160	3,757	2,369	3,105
Value.....	\$19,618	\$11,302	\$12,818	\$8,403	\$10,860
Wheat flour:					
Barrels.....	8,826,335	16,999,432	19,716,484	17,759,203	18,650,979
Value.....	\$40,176,136	\$68,894,836	\$73,756,404	\$65,661,974	\$69,459,296
Bran, middlings, and mill feed:					
Tons.....	36,293	19,193	49,513	48,980	79,358
Value.....	\$722,582	\$366,213	\$945,053	\$962,595	\$1,383,246

¹ "Commerce and Navigation of the United States," Bureau of Statistics, Department of Commerce and Labor.

The following statement shows the value of flour and grist mill products for 1905 and that of the imports and exports of these products for that year, with the percentages the imports and exports are of the value of products.

Value of products	\$713,033,395
Value of imports	\$176,513
Per cent imports form of products.....	(¹)
Value of exports.....	\$42,031,631
Per cent exports form of products.....	5.9

¹ Less than one-tenth of 1 per cent.

For the year 1905 the value of the products of the flour and grist mills amounted to \$713,033,395, of which the value of the exports was only 5.9 per cent, and the imports amounted to less than one-tenth of 1 per cent of the domestic product. The country is thus not only not dependent upon other countries for breadstuffs, but contributes a large amount to other countries.

The roller process.—The growth of the flour industry and the modern process of making roller flour were described at some length in the Census reports on flour and grist mill products published in 1880 and 1900, and it seems only necessary in this respect to refer to the growth of the industry during the past fifty years as indicative of the development of the roller process of making flour.

Other factors contributing to the growth of the industry are the constantly improving means of railroad and water transportation from the wheat fields of the northwest and the increasing demand for flour from the manufacturing centers of Europe and of the United States. To-day the industry is largely confined to big merchant mills turning out hundreds of barrels of flour a day, the neighborhood or custom mill having been driven out of business or forced to confine itself to the grinding of corn and feed for its own community.

A chemical analysis of the composition of wheat and wheat flour products will be found in Bulletin 3, part 9, of the Bureau of Chemistry, Department of Agriculture. For the purpose of this discussion it is sufficient to know that under pressure the wheat grain breaks into three parts, known commercially as flour, bran, and middlings.

The outer covering of the wheat, called bran, is a tough fibrous substance that is flattened out in the grinding process, but not broken into small particles as the other portions are. The germ of the wheat, which contains a large percentage of oil, flattens out and retains a shape similar to that of bran. The inner part, or floury portion, breaks into small fragments while the layers lying between this and the bran break into pieces between the two in size. It is this difference in the manner in which each part of the wheat breaks that permits their separation. In the old process of milling the aim was to grind as fine as possible, and thus produce the maximum quantity of flour at the first grinding. The modern mills accomplish this end by gradual reduction.

After the wheat has been freed from foreign substances and scoured to remove all impurities, it goes to the first set of rolls. These rolls are set just close enough to break the grain, it being desired to get as little flour as possible from the first break. The rolls are of corrugated steel, and so set that one revolves about three times as fast as the one paired with it, thus grinding as well as crushing the grain. The product of the break is passed through a scalping reel, a set of sieves which separate it into coarse bran, middlings, and a small amount of flour.

The coarse bran is sent to a second set of corrugated rolls, where it is broken still finer. It then goes through the sifting process again. This breaking and sifting is continued through from two to five more sets of rolls, each set crushing it finer than the preceding one, until the floury part of the grain is entirely separated from the bran. The middlings obtained from the first break, after being put through a purifying machine to remove the impurities, are passed through a set of smooth rolls, which reduce the particles to a smaller size. This is called the first reduction. The product is sifted, and the flour thus obtained is the

finest quality or first patent. The middlings from this sifting, together with those of the second break, are passed through a second set of smooth rolls for the second reduction, and then again sifted. This process is followed until the flour has been entirely removed from the middlings. The flour obtained from each successive reduction is slightly darker and of inferior quality to that of the preceding one. The product of the final reduction is so fine that it has a tendency to

clog in the meshes of the bolting cloth, and centrifugal force and brushes are usually employed to force the flour through this cloth. The whole process of manufacture, from the time the wheat enters the first machine until it is packed in barrels, is automatic.

Table 13 is a comparative summary of the industry, by states and territories, for 1900 and 1905, and Table 14 a detailed summary, by states and territories, for 1905.

TABLE 13.—COMPARATIVE SUMMARY, BY

STATE OR TERRITORY.	Census.	Number of establishments.	Capital.	SALARIED OFFICIALS, CLERKS, ETC.		WAGE-EARNERS AND WAGES.			
				Number.	Salaries.	Total.		Men 16 years and over.	
						Average number.	Wages.	Average number.	Wages.
1 United States.....	1905	10,051	\$265,117,434	7,415	\$7,352,357	39,110	\$19,822,196	38,572	\$19,675,724
2	1900	9,476	189,281,330	5,522	5,257,991	32,226	16,288,163	31,719	16,154,827
3 Alabama.....	1905	40	371,666	29	19,673	159	53,887	158	53,781
4	1900	37	364,646	24	20,000	138	41,215	138	41,215
5 Arizona.....	1905	9	404,445	14	17,585	36	24,368	36	24,368
6	1900	9	210,012	11	9,125	36	19,970	36	19,970
7 Arkansas.....	1905	91	1,352,669	55	44,697	263	103,632	262	103,402
8	1900	79	828,315	33	20,851	277	93,886	274	93,754
9 California.....	1905	122	11,467,154	317	443,196	889	659,488	851	645,348
10	1900	107	6,493,383	195	268,992	857	525,401	825	516,144
11 Colorado.....	1905	52	2,325,671	92	103,695	244	202,778	244	202,778
12	1900	49	1,977,332	87	76,265	272	166,822	271	166,072
13 Connecticut.....	1905	86	1,335,822	46	39,044	167	85,874	159	83,614
14	1900	84	1,042,084	32	23,133	169	76,388	164	74,633
15 Delaware.....	1905	47	484,171	12	7,930	137	58,425	137	58,425
16	1900	45	925,649	18	16,956	120	45,784	119	45,584
17 Florida.....	1905	7	77,684	3	2,700	13	5,515	13	5,515
18	1900	7	64,000	4	3,500	10	3,800	10	3,800
19 Georgia.....	1905	114	1,895,718	102	95,673	464	146,095	462	145,840
20	1900	94	1,337,760	71	55,080	447	133,352	442	132,852
21 Idaho.....	1905	28	685,397	21	18,625	84	66,864	84	66,864
22	1900	26	517,745	19	13,470	68	42,333	67	42,233
23 Illinois.....	1905	363	14,128,467	465	508,767	2,410	1,210,865	2,398	1,208,362
24	1900	353	10,714,299	356	356,442	1,965	1,029,694	1,961	1,028,392
25 Indian Territory.....	1905	33	889,451	40	39,526	161	78,238	161	78,238
26	1900	26	424,529	25	17,273	97	45,116	97	45,116
27 Indiana.....	1905	566	11,906,761	345	303,321	2,289	1,091,428	2,271	1,084,828
28	1900	541	10,023,384	286	276,708	2,071	992,182	2,049	986,720
29 Iowa.....	1905	276	5,216,059	173	135,007	770	399,108	762	395,803
30	1900	309	4,946,914	172	135,996	942	424,067	935	422,467
31 Kansas.....	1905	354	13,816,887	453	451,609	1,831	1,024,465	1,810	1,020,791
32	1900	357	8,015,988	278	265,677	1,405	726,082	1,395	724,511
33 Kentucky.....	1905	388	7,342,417	254	192,744	1,373	515,158	1,337	507,660
34	1900	341	4,388,555	168	125,254	1,050	462,150	1,047	461,588
35 Louisiana.....	1905	3	50,200	1	650	4	1,738	4	1,738
36	1900	4	70,300	2	2,100	30	8,615	30	8,615
37 Maine.....	1905	161	1,422,671	28	17,574	234	108,382	233	108,070
38	1900	157	1,145,996	18	11,560	182	89,253	182	89,253
39 Maryland.....	1905	202	2,717,258	91	72,969	550	212,332	543	211,225
40	1900	196	3,005,676	85	80,275	500	212,154	492	210,924
41 Massachusetts.....	1905	142	1,881,478	41	25,472	277	154,065	276	153,565
42	1900	149	1,689,056	52	32,407	278	152,055	278	152,055
43 Michigan.....	1905	405	7,654,270	277	232,736	1,508	766,690	1,480	759,530
44	1900	395	6,919,141	200	151,871	1,329	674,708	1,328	674,458
45 Minnesota.....	1905	363	34,857,366	836	906,274	4,481	2,650,818	4,440	2,637,035
46	1900	336	23,715,902	605	730,649	4,036	2,359,998	3,887	2,309,313
47 Missouri.....	1905	582	14,834,042	458	457,714	2,345	1,090,843	2,333	1,087,459
48	1900	544	10,205,313	332	309,281	1,517	786,795	1,505	783,761
49 Montana.....	1905	12	991,191	36	46,748	67	57,096	67	57,096
50	1900	13	686,409	25	26,380	61	49,921	61	49,921
51 Nebraska.....	1905	234	6,496,878	167	153,176	863	468,268	821	452,399
52	1900	236	4,049,031	137	101,601	682	355,192	640	346,565
53 Nevada.....	1905	9	411,368	6	7,500	17	16,098	17	16,098
54	1900	9	226,977	4	2,700	13	8,586	12	8,456
55 New Hampshire.....	1905	72	1,008,936	11	8,676	128	63,454	128	63,454
56	1900	89	868,354	14	10,168	157	73,498	157	73,498
57 New Jersey.....	1905	182	2,907,250	48	36,699	454	210,689	451	210,133
58	1900	166	2,361,814	58	39,298	374	185,197	374	185,197
59 New Mexico.....	1905	13	139,420	2	1,500	29	14,352	29	14,352
60	1900	16	166,634	2	1,500	35	19,563	35	19,563
61 New York.....	1905	825	24,819,316	520	594,451	3,063	1,553,122	2,966	1,531,841
62	1900	747	19,968,922	343	413,835	2,133	1,115,700	2,056	1,100,413
63 North Carolina.....	1905	234	1,990,346	72	46,790	519	160,329	513	159,636
64	1900	217	1,519,266	56	30,276	481	129,889	475	129,414
65 North Dakota.....	1905	56	2,383,673	76	84,915	312	200,439	312	200,439
66	1900	58	1,143,939	53	46,490	272	148,505	272	148,505

FLOUR AND GRIST MILL PRODUCTS.

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STATES AND TERRITORIES: 1905 AND 1900.

WAGE-EARNERS AND WAGES—continued.				Miscellaneous expenses.	MATERIALS USED.					
Women 16 years and over.		Children under 16 years.			Total cost.	Wheat.		Corn.		
Average number.	Wages.	Average number.	Wages.			Bushels.	Cost.	Bushels.	Cost.	
450 414	\$132,513 115,835	88 93	\$13,959 14,491	\$19,756,711 9,591,182	\$619,971,161 428,116,757	494,095,083 471,306,986	\$456,306,503 306,101,028	178,217,321 180,573,076	\$91,758,882 67,817,217	1 2
		1	156	29,716 19,607	1,556,392 1,366,975	138,420 462,845	151,325 342,373	2,258,428 1,977,325	1,291,547 906,722	3 4
				30,739 14,938	641,201 376,749	358,747 316,683	380,670 223,943	5,816 17,604	4,558 9,690	5 6
		.1 3	230 132	70,058 36,919	3,156,600 2,249,301	1,867,689 2,594,857	1,740,965 1,588,104	2,400,269 1,310,308	1,216,047 506,863	7 8
38 27	14,140 8,357	5	900	595,860 244,581	17,132,239 11,023,203	11,825,938 12,744,275	10,541,587 7,623,512	825,432 915,958	569,286 476,852	9 10
1	750			272,570 128,407	4,797,409 3,769,387	4,635,278 4,793,453	3,855,777 2,675,409	922,926 1,562,862	449,370 506,267	11 12
8 5	2,260 1,755			41,010 23,882	1,690,486 1,398,763	6,531 9,554	6,304 7,017	2,289,271 2,544,284	1,317,763 1,060,936	13 14
		1	200	48,415 25,276	1,315,404 901,990	832,689 709,481	818,106 499,612	759,523 751,687	395,437 270,928	15 16
				2,967 1,109	112,038 105,578			174,936 181,800	100,296 91,540	17 18
		2 5	255 500	197,123 50,164	7,264,804 4,445,473	3,186,908 2,646,456	3,618,164 2,142,404	5,138,934 3,792,211	3,211,483 1,863,496	19 20
		1	100	56,255 21,323	1,315,398 571,569	1,509,784 1,182,401	1,114,237 489,027	10,000 4,426	6,820 2,344	21 22
7 1	1,916 300	5 3	587 1,002	805,646 525,051	34,929,657 24,936,887	28,380,202 28,198,219	26,637,126 18,960,992	12,816,823 11,373,625	5,746,949 3,507,251	23 24
				61,599 26,828	2,156,000 936,658	1,554,070 1,149,234	1,437,938 684,642	1,265,105 611,779	540,089 157,616	25 26
16 16	6,320 4,720	2 6	280 742	793,605 556,638	31,342,117 24,804,260	25,156,032 28,765,523	24,308,577 18,911,006	11,177,094 12,882,582	5,182,341 4,220,079	27 28
7 6	3,005 1,570	1 1	300 30	322,960 244,306	10,317,008 8,968,532	8,689,866 6,494,961	7,889,237 6,494,961	2,463,049 4,198,690	1,011,436 1,108,167	29 30
19 8	3,330 1,221	2 2	344 350	1,077,391 438,004	36,895,122 18,130,893	36,197,651 23,328,314	30,634,839 13,090,459	8,790,875 11,187,422	3,783,639 3,338,340	31 32
28 2	6,401 442	8 1	1,097 120	609,530 286,484	15,099,049 10,796,909	12,611,709 12,080,158	12,082,301 8,158,644	4,219,724 4,478,660	2,100,636 1,860,036	33 34
				2,495 2,035	53,360 252,882			80,430 584,000	46,758 195,760	35 36
		1	312	57,941 41,977	3,442,115 2,622,761	136,230 115,804	135,156 88,277	4,545,168 4,375,896	2,749,466 1,987,287	37 38
4 5	667 883	3 3	440 347	238,525 214,617	6,209,983 6,103,295	5,110,510 6,744,692	4,696,624 4,744,120	1,898,891 2,184,949	993,781 830,624	39 40
1	500			92,080 87,566	4,112,989 4,497,164	37,429 27,104	39,984 20,204	6,247,591 9,117,277	3,649,038 3,845,799	41 42
27	6,910	1 1	250 250	541,168 374,672	23,414,207 18,406,387	19,092,087 19,197,782	17,047,048 13,372,561	6,256,432 6,407,395	3,121,460 2,359,441	43 44
38 147	13,166 50,440	3 2	617 245	4,471,676 1,289,106	109,060,973 73,821,964	110,046,339 102,597,834	98,671,534 3,452,826	2,646,411 1,037,106	1,159,531 1,037,106	45 46
6 4	2,196 1,450	6 8	1,188 1,584	960,217 483,549	32,927,827 20,034,195	29,507,080 24,028,746	26,899,942 15,427,351	8,013,969 9,152,031	3,615,528 3,171,388	47 48
				88,552 44,708	1,592,385 774,159	1,462,979 1,168,244	1,410,091 6,301	3,117 6,301	1,969 2,250	49 50
42 37	15,869 7,836	5	791	390,587 165,690	10,153,429 6,153,485	8,658,038 8,404,370	6,955,794 4,402,921	4,643,455 3,149,536	1,845,619 826,382	51 52
				20,333 5,675	431,817 113,683	237,190 147,046	228,940 93,137	7,299 40	4,699 50	53 54
1	130			35,106 27,970	2,348,332 1,932,121	382,785 311,827	458,599 218,950	2,807,347 3,172,036	1,641,162 1,324,178	55 56
2	400	1	156	144,522 85,918	4,521,713 4,447,286	1,711,041 2,222,002	1,717,855 4,055,870	3,523,460 4,055,870	2,014,932 1,651,951	57 58
				6,384 9,283	311,857 296,262	250,676 374,532	239,496 235,550	73,777 38,296	49,907 20,905	59 60
97 77	21,281 15,287			1,726,638 904,124	47,372,493 31,058,465	26,036,183 23,160,955	26,508,780 17,169,976	19,747,956 7,346,287	11,030,517 7,346,287	61 62
		6 6	693 475	98,822 44,303	5,985,862 3,845,815	3,453,799 2,900,736	3,789,471 2,274,943	2,966,052 2,679,432	1,825,724 1,313,421	63 64
				214,019 63,130	5,462,541 3,102,379	5,844,493 4,667,032	4,889,166 2,673,526	4,300 151,584	2,150 55,785	65 66

MANUFACTURES.

TABLE 13.—COMPARATIVE SUMMARY, BY STATES

	STATE OR TERRITORY.	Census.	Number of establishments.	Capital.	SALARIED OFFICIALS, CLERKS, ETC.		WAGE-EARNERS AND WAGES.			
					Number.	Salaries.	Total.		Men 16 years and over.	
							Average number.	Wages.	Average number.	Wages.
67	Ohio.....	1905	694	\$14,931,065	438	\$422,332	2,700	\$1,339,568	2,006	\$1,312,153
68		1900	676	10,772,804	339	301,846	2,334	1,169,971	2,289	1,159,039
69	Oklahoma.....	1905	75	3,242,032	153	146,043	456	253,256	456	253,256
70		1900	40	1,023,579	80	64,585	249	120,044	247	119,944
71	Oregon.....	1905	105	3,997,069	85	106,666	395	271,183	395	271,183
72		1900	105	3,000,516	82	83,171	420	238,596	411	234,496
73	Pennsylvania.....	1905	1,195	18,765,691	306	237,394	2,632	1,246,835	2,613	1,243,120
74		1900	1,073	14,985,929	265	201,997	1,966	946,162	1,953	943,820
75	Rhode Island.....	1905	22	389,479	15	7,450	45	23,771	44	23,621
76		1900	21	480,521	19	13,506	72	35,208	72	35,208
77	South Carolina.....	1905	29	205,619	14	7,494	60	18,414	60	18,414
78		1900	26	204,667	18	8,210	94	25,248	94	25,248
79	South Dakota.....	1905	96	2,427,556	64	57,338	347	203,102	346	202,502
80		1900	86	1,646,936	52	47,350	275	148,232	273	147,832
81	Tennessee.....	1905	387	6,927,155	250	212,094	1,595	591,046	1,580	588,756
82		1900	362	4,997,169	217	191,761	1,055	500,432	1,046	498,799
83	Texas.....	1905	154	7,785,339	292	346,696	986	527,652	985	527,502
84		1900	120	3,982,811	133	144,498	682	386,892	682	386,892
85	Utah.....	1905	63	1,212,439	48	27,150	150	91,461	148	90,916
86		1900	65	978,640	47	30,720	149	75,309	148	74,996
87	Vermont.....	1905	109	1,319,735	14	10,658	185	91,464	183	90,554
88		1900	115	1,103,778	28	20,248	170	73,242	168	72,797
89	Virginia.....	1905	365	5,503,101	142	104,726	957	348,681	951	347,831
90		1900	359	3,198,207	100	66,925	613	262,039	606	260,661
91	Washington.....	1905	76	6,490,492	171	211,840	613	409,828	607	407,399
92		1900	66	2,626,729	107	123,198	482	279,040	469	276,340
93	West Virginia.....	1905	194	2,622,906	79	65,777	400	183,050	399	182,790
94		1900	185	1,429,378	22	13,846	254	124,553	253	124,385
95	Wisconsin.....	1905	389	10,545,861	234	252,986	1,351	719,682	1,344	717,790
96		1900	358	8,418,546	220	246,327	1,275	649,718	1,263	646,902
97	Wyoming.....	1905	11	222,440	6	5,305	16	11,258	16	11,258
98		1900	8	156,750	8	10,240	14	11,210	14	11,210
99	All other states.....	¹ 1905	16	263,353	13	12,772	81	37,042	81	37,042
100		² 1900	16	257,045	20	14,450	118	41,396	117	41,296

¹ Includes establishments distributed as follows: 1905, District of Columbia, 7; Mississippi, 9; grouped to avoid disclosing operations of individual establishments.

AND TERRITORIES: 1905 AND 1900—Continued.

WAGE-EARNERS AND WAGES—continued.				Miscellaneous expenses.	MATERIALS USED.					
Women 16 years and over.		Children under 16 years.			Total cost.	Wheat.		Corn.		
Average number.	Wages.	Average number.	Wages.			Bushels.	Cost.	Bushels.	Cost.	
91	\$26,923	3	\$992	\$992,625	\$35,626,232	27,610,184	\$27,368,062	10,443,366	\$5,027,378	67
41	10,547	4	385	597,118	29,984,083	33,753,826	23,528,633	10,640,919	3,676,025	68
		2	100	239,532	8,030,939	7,557,640	6,521,893	2,206,932	885,218	69
				85,704	2,948,401	4,393,075	2,377,078	1,255,589	314,413	70
				235,836	7,352,430	8,059,304	6,223,471	27,279	17,369	71
8	4,000	1	100	177,632	5,179,627	8,603,442	4,280,159	56,004	28,875	72
6	1,609	13	2,106	927,480	33,204,512	19,207,373	19,455,445	14,658,274	8,109,064	73
		13	2,342	557,734	24,864,786	21,277,176	15,088,596	13,001,739	5,284,115	74
1	150			13,357	1,059,438	1,970	1,797	1,590,601	826,905	75
				21,601	1,562,612	3,452	2,561	2,526,591	1,061,121	76
				7,708	633,294	258,438	279,874	483,062	321,069	77
				7,854	733,898	524,347	457,946	453,241	221,106	78
1	600			204,249	5,357,765	5,705,270	4,715,970	285,524	107,280	79
		2	400	70,205	2,684,868	4,279,664	2,332,717	250,870	65,486	80
1	300	14	1,990	488,700	21,912,157	15,144,660	15,657,858	9,062,184	4,801,171	81
		9	1,633	256,519	16,322,689	16,035,045	11,240,604	8,853,032	3,704,164	82
		1	150	810,098	18,962,755	15,365,908	15,333,789	4,182,282	2,177,086	83
				238,545	10,093,949	12,177,919	8,013,717	2,973,153	1,044,031	84
1	400	1	145	58,147	2,043,054	2,251,616	1,892,085	35,286	21,763	85
		1	313	52,712	1,291,357	2,324,135	1,124,820	55,958	28,647	86
2	910			54,155	2,872,445	15,920	15,378	4,118,390	2,401,439	87
2	445			44,110	2,287,478	25,657	17,964	4,188,932	1,731,841	88
		6	850	223,190	12,170,629	8,586,439	8,689,548	5,086,297	2,769,322	89
4	1,000	3	378	103,896	7,483,787	7,202,821	5,062,119	4,457,120	1,924,536	90
4	2,080	2	349	466,378	12,771,390	13,587,162	10,743,311	269,901	165,285	91
12	2,400	1	300	148,741	5,649,327	8,772,778	4,250,327	359,958	173,169	92
		1	260	116,063	5,213,205	3,039,288	3,197,056	2,791,879	1,549,151	93
		1	168	49,296	3,108,887	2,940,951	2,057,884	1,658,156	714,681	94
3	1,180	4	712	784,055	24,756,140	17,896,060	16,781,601	3,430,171	1,592,454	95
10	2,312	2	504	667,483	20,622,884	21,784,604	14,490,187	4,191,433	1,364,969	96
				13,240	219,155	222,478	192,232	18,915	11,000	97
				5,162	154,895	226,937	130,283	20,000	8,000	98
				16,489	662,814	367,000	331,500	543,118	295,990	99
		1	100	19,030	897,799	323,502	219,510	1,467,936	616,297	100

* Includes establishments distributed as follows: 1900, District of Columbia, 8; Mississippi, 8; grouped to avoid disclosing operations of individual establishments.

MANUFACTURES.

TABLE 13.—COMPARATIVE SUMMARY, BY STATES

1	2	STATE OR TERRITORY.	Census.	MATERIALS USED—continued.							
				Rye.		Buckwheat.		Barley.		Oats.	
				Bushels.	Cost.	Bushels.	Cost.	Bushels.	Cost.	Bushels.	Cost.
		United States.....	1905	11,480,370	\$7,619,473	6,531,305	\$3,948,160	18,628,552	\$8,847,684	45,381,009	\$16,199,579
			1900	10,088,381	4,943,126	5,490,156	2,891,616	10,067,348	3,748,822	47,175,766	12,689,504
		Alabama.....	1905	500	500					23,400	8,873
			1900	800	480	30	25			40,000	13,000
		Arizona.....	1905					320,938	211,490		
			1900					195,138	83,676	2,921	980
		Arkansas.....	1905	300	150					200	60
			1900	200	125					20,300	6,105
		California.....	1905	117,692	91,303	12,240	12,506	8,696,473	4,471,641	1,045,740	526,877
			1900	87,988	48,582	14,400	14,360	4,544,879	1,711,418	822,595	274,893
		Colorado.....	1905	13,289	7,620	100	60	65,612	32,183	114,392	43,047
			1900	6,606	3,917	665	439	15,600	5,894	606,765	157,119
		Connecticut.....	1905	11,326	8,463	6,750	4,742	11,060	5,675	770,136	299,360
			1900	29,257	15,829	15,650	10,788	1,340	708	565,262	174,740
		Delaware.....	1905	350	198	14,050	7,960			8,550	3,638
			1900	782	366	10,800	6,050			23,490	6,558
		Florida.....	1905							21,100	9,041
			1900							1,200	528
		Georgia.....	1905	884	639					59,145	24,745
			1900	550	875					398,100	113,240
		Idaho.....	1905	1,650	690			249,241	104,506	24,600	8,395
			1900	500	300			72,769	25,998	9,298	3,282
		Illinois.....	1905	429,135	302,381	67,058	46,190	57,468	25,055	586,285	183,239
			1900	332,859	169,269	139,790	77,340	64,853	23,026	1,528,724	363,159
		Indian Territory.....	1905			11,000	6,600			45,200	8,710
			1900								
		Indiana.....	1905	151,310	88,729	72,951	46,265	26,330	12,036	886,992	280,369
			1900	177,114	84,150	120,942	62,529	53,985	19,331	821,364	193,514
		Iowa.....	1905	203,566	116,855	130,160	84,791	328,719	123,881	1,293,690	377,019
			1900	305,329	130,437	188,974	100,367	242,689	71,347	1,871,911	371,053
		Kansas.....	1905	114,528	73,317	22,246	17,496	41,051	14,715	98,490	32,795
			1900	120,410	61,907	22,855	15,685	6,850	2,169	420,556	89,515
		Kentucky.....	1905	5,786	3,406			2,000	1,000	135,321	41,457
			1900	8,725	4,456			5,260	2,625	62,275	16,762
		Louisiana.....	1905							5,555	2,500
			1900							16,000	5,600
		Maine.....	1905	3,830	3,496	123,876	54,012	138,425	71,274	880,238	366,561
			1900	15,242	8,562	120,490	46,570	31,439	15,334	776,727	251,076
		Maryland.....	1905	87,213	56,157	60,319	37,341	3,844	1,804	239,944	90,624
			1900	75,677	37,820	40,577	20,683	13,435	5,786	101,474	31,085
		Massachusetts.....	1905	80,313	57,874	5,753	3,718	23,358	11,681	685,348	289,787
			1900	281,615	143,866	13,519	7,967	50,960	20,170	1,079,841	340,241
		Michigan.....	1905	922,684	502,385	761,313	429,668	178,715	85,998	2,680,717	1,019,649
			1900	549,352	260,403	512,928	267,320	113,892	48,392	3,709,174	963,131
		Minnesota.....	1905	977,058	621,886	85,225	49,047	2,099,104	718,483	4,571,448	1,352,464
			1900	417,314	188,488	71,531	40,071	801,644	245,954	2,609,032	597,495
		Missouri.....	1905	49,853	28,772	7,501	6,742	31,400	13,297	351,986	114,932
			1900	71,146	33,125	34,785	19,139	65,408	17,042	293,503	73,163
		Montana.....	1905	1,000	650			12,329	6,123	60,600	23,000
			1900	2,000	1,200			1,595	607	34,445	12,907
		Nebraska.....	1905	375,093	203,496	7,339	5,198	149,204	45,324	984,210	345,378
			1900	319,785	130,867	9,644	5,832	55,810	13,962	1,527,240	315,473
		Nevada.....	1905	1,432	933			270,593	156,001	65,261	30,183
			1900			175	105	23,697	13,100		
		New Hampshire.....	1905	20,981	12,369			10,300	5,614	424,860	182,091
			1900	6,830	5,143	18,200	7,480	8,935	4,496	647,736	201,810
		New Jersey.....	1905	396,105	256,878	141,757	86,254	17,850	8,609	677,347	271,082
			1900	414,335	212,870	137,181	71,738	1,950	970	1,865,939	579,984
		New Mexico.....	1905			10	10	350	357	1,240	620
			1900					32,000	20,165	1,700	700
		New York.....	1905	2,109,653	1,498,573	2,398,374	1,493,446	450,524	228,926	9,971,846	3,841,647
			1900	1,350,336	783,737	1,396,742	732,628	319,280	147,172	9,055,984	2,723,126
		North Carolina.....	1905	59,037	43,025	12,850	7,590	1,100	850	59,258	26,353
			1900	29,948	20,105	2,725	1,416	4,760	2,843	79,258	28,676

FLOUR AND GRIST MILL PRODUCTS.

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AND TERRITORIES: 1905 AND 1900—Continued.

MATERIALS USED—continued.										PRODUCTS.			
Other grain.		Barrels (purchased).	Sacks (purchased).	Cooperage stock, and cloth and paper for sacks.	Fuel.	Rent of power and heat.	Mill supplies.	All other materials.	Freight.	Total value.	Wheat flour.		
Bushels.	Cost.	Cost.	Cost.	Cost.	Cost.	Cost.	Cost.	Cost.	Cost.		White.	Barrels.	Value.
612,089 4,360,107	\$384,786 1,535,397	\$4,545,074 4,618,715	\$16,807,001 11,431,000	\$1,613,332 1,551,802	\$5,999,987 4,331,956	\$342,649 365,073	\$909,759 1,475,893	\$1,585,314 952,590	\$3,102,978 3,662,958	\$713,033,395 501,396,304	103,608,350 99,763,777	\$478,484,601 333,997,686	1 2
250	163	6,995 6,630	66,088 52,291	575 75	22,942 16,547	860	2,891 4,250	1,133 6,859	2,500 17,723	1,750,452 1,573,075	28,483 96,386	158,320 369,683	3 4
			19,179 12,821		8,606 5,035	2,400 220	1,371 1,784	927 600	12,000 35,000	743,124 448,438	72,459 64,657	419,299 286,118	5 6
		4,248 1,585	116,506 73,697	8,781 19,026	45,418 35,478	700 454	6,706 7,649	12,156 3,577	4,863 6,638	3,702,495 2,757,668	377,760 524,122	1,869,206 1,769,170	7 8
100,159 34,550	157,415 20,955	29,960 41,193	447,264 410,171	8,626 60,000	99,389 165,036	69,866 33,672	18,567 40,826	22,051 20,371	65,901 81,342	20,202,542 13,045,260	2,408,358 2,653,935	10,479,131 7,928,449	9 10
1,466 5,142	733 2,521	900 12,000	240,835 200,723	162	52,205 46,027		6,019 17,273	6,919 12,838	101,579 128,960	5,783,421 4,441,020	962,862 995,592	4,348,518 3,015,051	11 12
16,766 99,986	8,183 36,472	165 400	11,137 9,368	214 20	13,358 11,988	3,198 5,208	1,908 5,129	9,268 3,200	748 56,960	1,981,774 1,699,974	1,305 1,513	6,760 6,342	13 14
		12,791 19,187	33,293 19,430	1,230 170	13,964 12,695		3,095 5,827	436 1,807	25,256 59,310	1,536,604 1,069,994	168,944 152,173	865,794 583,165	15 16
			1,504 2,135		934 975		263 300		8,500	137,180 128,262			17 18
2,300	1,600												
500 4,100	500 3,100	41,962 13,690	243,259 167,832	9,594 5,451	55,191 36,060	240 1,040	7,245 10,547	41,162 10,377	10,620 77,361	8,178,926 5,323,786	671,654 596,020	3,746,681 2,622,708	19 20
		459	53,717 26,558		19,574 14,632	1,552	1,953 4,848	545 1,400	2,950 3,180	1,584,473 733,573	308,780 236,723	1,222,609 592,077	21 22
1,676 40,615	998 12,556	121,083 369,202	769,266 535,271	548,237 236,846	306,260 256,836	9,536 8,983	68,136 87,608	91,848 243,825	73,353 84,693	39,892,127 28,575,357	5,939,383 5,932,815	27,542,880 20,320,387	23 24
5,000	1,500	275	84,377 42,943		26,393 17,552		3,739 4,281	1,152 145	60,537 14,169	2,582,657 1,117,445	326,880 238,014	1,616,412 739,139	25 26
14,930 74,350	6,290 32,525	285,311 245,125	551,703 501,430	20,742 38,848	375,523 292,180	4,602 5,775	45,935 74,298	61,664 29,686	72,030 93,784	36,473,543 29,037,843	5,173,360 5,733,308	25,243,760 20,069,146	27 28
50,514 125,589	21,207 29,037	4,511 8,295	280,330 313,792	4,621 1,260	145,793 154,702	7,199 5,485	23,210 40,841	25,910 19,825	201,008 118,960	12,099,493 11,012,608	1,689,716 2,273,924	8,246,299 7,632,378	29 30
23,620 97,670	9,145 29,793	85,133 90,588	1,615,240 804,544	58,711 27,052	398,185 230,606	12,414 17,422	48,877 65,657	7,555 20,249	103,061 246,907	42,034,019 21,328,747	7,609,605 5,008,764	32,532,016 15,015,978	31 32
		186,390 160,127	405,294 287,594	42,757 28,057	176,772 136,097	350 400	19,304 37,664	17,778 9,244	21,604 77,833	18,007,786 13,017,043	2,640,617 2,527,699	13,201,621 9,176,202	33 34
			3,100 12,256		450 1,601	360	192 260		30,500	65,762 289,454	600	3,000	35 36
4,000 246,031	3,000 114,760	170 445	15,650 6,297	239	12,391 15,094	11,086 6,805	3,040 7,448	9,517 7,767	7,057 67,039	3,932,882 3,142,633	24,485 23,130	145,829 97,126	37 38
2,350 42,671	1,210 17,226	92,559 118,349	103,466 124,162	24,100 30,393	65,701 61,132	3,895 2,782	20,041 18,913	9,775 16,403	12,895 43,817	7,318,212 7,237,962	1,015,866 1,401,948	4,860,290 5,157,198	39 40
8,510 66,136	3,890 29,143	1,701 700	7,409 12,474	240 50	24,885 23,105	5,159 10,251	4,162 8,510	9,673 7,788	3,808 26,896	4,618,313 5,393,147	250 7,283	1,400 27,544	41 42
24,261 249,748	11,517 104,663	215,287 266,304	473,342 330,919	77,206 99,815	241,933 181,930	6,203 2,233	35,973 45,914	37,664 37,767	108,874 65,594	26,512,027 21,643,547	3,860,809 4,050,329	16,987,310 14,349,601	43 44
73,512 242,206	25,507 64,370	1,432,634 1,355,550	3,174,258 2,227,832	122,978 60,571	933,435 565,137	14,814 154,627	124,864 348,540	106,522 90,954	553,006 385,137	122,059,123 82,988,054	23,839,717 22,641,833	103,254,958 72,170,064	45 46
32,950 14,790	12,157 6,482	200,764 174,800	1,037,951 645,861	239,027 55,939	451,496 276,941	1,103 835	65,821 58,067	51,686 22,950	188,699 51,052	38,026,142 23,831,805	6,171,011 5,022,943	28,492,692 17,029,182	47 48
			71,546 39,321		11,829 7,221	1,800 4,800	6,070 9,942		59,301 8,125	2,003,136 937,462	297,796 244,457	1,723,672 806,089	49 50
13,600 26,775	4,685 7,485	7,149	444,991 254,955	5,956 6,686	183,265 88,155	2,230 1,850	17,339 32,184	68,575 38,502	18,430 27,931	12,190,303 7,794,130	1,730,468 1,666,390	7,897,128 5,150,851	51 52
			8,431 4,106		1,205 1,400	900	240 1,468	285	317	520,969 143,391	47,186 28,803	255,598 107,408	53 54
300 160,051	175 75,992	750 1,000	10,286 14,409	20,600 20,068	4,046 8,293	2,722 788	2,059 5,221	4,659 1,710	3,200 42,583	2,541,775 2,205,475	75,380 62,379	451,790 244,456	55 56
33,070 169,696	14,509 62,997	19,739 35,868	59,646 66,142	3,465 700	24,510 30,771	2,555 2,160	6,149 11,186	8,454 13,996	27,076 42,561	5,468,613 5,326,555	353,270 446,116	1,908,655 1,787,025	57 58
			10,661 9,027		7,152 7,630	1,320	886 1,629	1,205 306	243 50	388,124 391,273	51,008 77,005	267,811 272,167	59 60
21,933 845,236	10,086 315,327	613,822 416,885	925,730 316,489	42,805 581,138	305,666 223,163	41,030 23,618	103,443 66,600	600,524 42,587	127,498 169,732	54,546,435 35,930,493	5,637,588 5,107,418	27,993,291 18,569,427	61 62
15,670 26,680	10,406 11,131	558 171	143,920 70,611	180 115	93,298 50,131	3,740 1,300	9,372 12,167	20,249 6,640	11,196 52,145	6,863,770 4,702,514	713,379 594,617	3,816,342 2,542,392	63 64

MANUFACTURES.

TABLE 13.—COMPARATIVE SUMMARY, BY STATES

STATE OR TERRITORY.	Census.	MATERIALS USED—continued.							
		Rye.		Buckwheat.		Barley.		Oats.	
		Bushels.	Cost.	Bushels.	Cost.	Bushels.	Cost.	Bushels.	Cost.
65 North Dakota.....	1905	300	\$210	-----	-----	264,700	\$87,941	294,413	\$79,015
66	1900	11,240	4,512	15	\$9	187,873	58,029	137,757	40,255
67 Ohio.....	1905	281,456	193,211	133,286	80,796	307,904	155,800	3,042,451	1,037,117
68	1900	201,725	107,748	137,517	74,054	59,607	21,587	3,640,911	882,730
69 Oklahoma.....	1905	2,625	1,854	-----	-----	625	500	500	150
70	1900	7,500	3,100	100	50	7,500	1,850	102,730	20,180
71 Oregon.....	1905	8,193	5,275	360	287	1,079,667	531,398	319,760	125,553
72	1900	12,748	7,585	8,775	5,323	754,532	292,801	346,837	121,450
73 Pennsylvania.....	1905	1,458,578	1,026,846	1,744,335	1,022,238	181,004	90,815	5,635,097	2,122,493
74	1900	1,738,055	722,129	1,792,699	913,493	76,639	29,746	4,956,386	1,475,706
75 Rhode Island.....	1905	6,800	5,032	-----	-----	24,050	10,780	240,634	95,673
76	1900	9,500	6,233	-----	-----	3,560	2,201	520,719	157,751
77 South Carolina.....	1905	50	35	50	50	-----	-----	3,400	1,037
78	1900	3,800	2,925	-----	-----	-----	-----	40,100	14,825
79 South Dakota.....	1905	42,699	22,460	926	699	256,598	80,335	238,205	70,717
80	1900	36,400	11,300	2,300	1,500	111,823	34,609	114,345	28,178
81 Tennessee.....	1905	7,552	4,298	4,050	2,575	8,225	3,971	10,696	3,680
82	1900	1,186	653	1,850	849	700	410	59,196	18,693
83 Texas.....	1905	6,221	5,095	-----	-----	6,391	2,896	127,000	51,900
84	1900	22,683	13,637	-----	-----	2,200	680	248,544	60,611
85 Utah.....	1905	18,733	11,611	-----	-----	76,742	42,176	5,796	2,536
86	1900	8,128	3,791	125	125	64,267	30,141	84,435	29,681
87 Vermont.....	1905	3,485	2,552	12,590	6,930	121,024	61,383	888,752	360,070
88	1900	12,829	7,348	30,069	14,821	58,777	25,614	812,326	248,860
89 Virginia.....	1905	105,020	62,631	23,182	12,393	18,537	9,192	91,726	35,172
90	1900	109,962	53,171	35,437	16,187	18,227	8,133	142,141	39,201
91 Washington.....	1905	48,499	36,322	-----	-----	1,325,825	620,334	1,055,264	373,917
92	1900	16,710	10,025	10	5	1,191,497	454,352	625,005	194,155
93 West Virginia.....	1905	60,590	40,501	93,885	56,156	3,400	1,704	480,667	173,016
94	1900	76,176	37,884	121,390	61,319	180	83	357,734	110,443
95 Wisconsin.....	1905	3,289,801	2,217,675	588,789	373,070	1,767,172	791,486	6,213,849	1,869,783
96	1900	3,212,739	1,603,188	476,266	288,749	800,873	282,996	5,908,761	1,316,414
97 Wyoming.....	1905	200	120	-----	-----	700	450	400	160
98	1900	-----	-----	-----	-----	925	405	20,625	6,550
99 All other states.....	¹ 1905	5,000	3,000	-----	-----	-----	-----	4,500	1,804
100	¹ 1900	2,300	1,020	-----	-----	-----	-----	19,200	6,216

¹ Includes establishments distributed as follows: 1905, District of Columbia, 7; Mississippi, 9; grouped to avoid disclosing operations of individual establishments.

FLOUR AND GRIST MILL PRODUCTS.

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AND TERRITORIES: 1905 AND 1900—Continued.

MATERIALS USED continued.										PRODUCTS.			
Other grain.		Barrels (purchased).	Sacks (purchased).	Cooperage stock, and cloth and paper for sacks.	Fuel.	Rent of power and heat.	Mill supplies.	All other materials.	Freight.	Total value.	Wheat flour.		
Bushels.	Cost.	Cost.	Cost.	Cost.	Cost.	Cost.	Cost.	Cost.	Cost.		Barrels.	Value.	
10,900	\$3,225	\$2,920	\$188,651	\$30,577	\$124,541	-----	\$8,768	\$5,085	\$40,292	\$6,463,228	1,221,416	\$5,506,935	05
46,850	12,095	3,450	117,814	5,200	78,864	-----	22,846	2,888	27,106	3,849,829	997,196	3,177,946	06
44,159	25,792	237,460	635,710	139,118	374,193	\$5,856	48,979	171,805	124,955	40,855,566	5,606,458	27,764,108	67
49,293	17,706	389,069	615,904	66,217	315,294	10,793	86,525	58,955	132,843	35,077,553	7,113,343	25,140,728	68
2,500	875	2,665	398,328	7,000	112,769	5,900	9,268	2,690	81,829	9,436,266	1,632,967	7,258,828	69
38,800	10,100	4,619	133,579	-----	57,946	1,500	12,372	2,803	8,831	3,595,508	947,963	2,769,354	70
700	54	-----	357,379	-----	29,631	29,030	7,706	22,296	2,835	8,467,613	1,716,833	6,236,291	71
127,000	51,700	54	264,874	-----	25,296	20,514	17,548	17,475	45,973	6,136,250	1,778,799	4,620,351	72
29,982	15,458	305,395	485,976	47,159	233,217	8,407	38,882	42,117	201,000	38,518,702	3,952,446	19,764,264	73
405,312	159,626	183,849	444,090	139,818	178,270	6,937	69,801	28,384	140,226	29,570,943	4,450,832	15,935,768	74
-----	-----	150	3,741	-----	8,715	800	617	90	105,138	1,134,092	10	60	75
10,394	3,933	250	6,871	-----	7,498	800	4,644	660	308,089	1,820,106	766	2,540	76
100	100	10	17,291	-----	11,025	1,325	799	132	547	725,222	53,100	292,278	77
-----	-----	753	20,707	-----	7,608	-----	1,574	100	6,354	869,233	106,215	496,735	78
21,739	6,150	3,426	192,584	2,773	132,106	60	9,465	5,438	8,302	6,519,364	1,142,805	5,360,128	79
6,000	1,580	687	90,411	-----	63,285	650	18,473	1,108	34,884	3,208,532	897,026	2,643,678	80
1,050	430	172,091	708,034	78,887	170,555	360	26,043	12,692	269,512	25,350,758	3,184,847	17,015,408	81
364,025	92,083	239,400	517,614	28,768	142,103	175	40,100	33,981	263,092	19,161,398	3,339,040	12,590,493	82
21,500	9,200	79,882	820,949	15,968	239,941	6,925	29,903	4,413	184,808	22,083,136	3,223,390	16,466,591	83
7,700	1,900	33,733	489,940	24,000	143,538	4,024	41,239	80,344	142,555	11,948,556	2,546,477	8,824,717	84
-----	-----	-----	55,641	3,000	5,957	5,159	2,602	275	249	2,425,791	449,779	1,946,384	85
-----	-----	-----	50,997	150	7,150	2,370	5,847	1,476	6,162	1,659,233	466,474	1,275,359	86
1,200	600	80	3,529	255	8,416	1,060	3,274	5,686	1,793	3,206,075	2,007	10,240	87
93,163	40,194	1,587	9,231	-----	8,676	950	5,712	2,320	172,360	2,769,648	3,909	15,358	88
3,025	1,817	79,805	320,480	27,861	65,651	11,408	12,706	21,472	51,171	13,832,299	1,776,312	8,851,839	89
29,368	11,725	86,671	179,754	8,403	37,721	4,170	20,740	7,869	23,387	8,942,198	1,508,929	5,580,887	90
132	63	-----	586,633	680	75,132	49,624	16,640	21,665	81,784	14,663,612	2,978,264	10,959,241	91
6,980	3,032	-----	334,541	-----	52,884	10,384	31,820	1,980	132,653	6,773,574	1,853,271	4,719,797	92
1,000	500	25,411	99,566	11,778	45,050	-----	6,018	4,108	3,090	6,200,291	625,866	3,387,142	93
24,000	10,250	14,203	40,998	225	35,664	-----	6,854	4,660	13,739	3,792,629	590,917	2,284,571	94
29,065	17,000	256,872	483,322	7,230	234,956	4,321	27,554	35,808	63,008	28,352,237	3,726,363	17,531,813	95
532,720	123,948	309,688	495,993	631	185,459	7,748	47,410	34,409	71,095	23,700,874	4,638,698	15,082,162	96
-----	-----	-----	10,498	-----	2,365	-----	330	-----	2,000	283,653	43,708	226,604	97
-----	-----	-----	7,836	-----	1,031	-----	705	50	35	211,177	45,164	164,475	98
-----	-----	13,575	9,300	-----	4,108	580	1,335	250	1,372	769,288	73,400	350,375	99
-----	-----	12,545	14,475	1,000	9,469	3,300	4,852	340	8,775	1,041,075	67,862	233,244	100

*Includes establishments distributed as follows: 1900, District of Columbia, 8; Mississippi, 8; grouped to avoid disclosing operations of individual establishments.

TABLE 13.—COMPARATIVE SUMMARY, BY STATES

STATE OR TERRITORY.		Census.	PRODUCTS—continued.							
			Wheat flour—Continued.		Rye flour.		Buckwheat flour.		Barley meal.	
			Graham.							
			Barrels.	Value.	Barrels.	Value.	Pounds.	Value.	Pounds.	Value.
1 2	United States.....	1905 1900	404,928	\$1,773,913	1,503,100 1,443,339	\$5,892,108 4,145,565	175,354,062 143,190,724	\$4,379,359 3,190,152	68,508,655 91,275,646	\$922,884 963,710
3 4	Alabama.....	1905 1900	.....	.....	100 100	562 400	750	25	.....	.....
5 6	Arizona.....	1905 1900	439	2,812 .....	.....	.....	.....	.....	8,773,000 5,057,000	136,846 64,170
7 8	Arkansas.....	1905 1900	270	1,320	43	116.....	.....	.....	.....	.....
9 10	California.....	1905 1900	21,141	132,540	22,733 14,582	105,946 43,641	352,382 552,000	12,753 19,572	27,194,515 59,084,492	348,402 571,350
11 12	Colorado.....	1905 1900	7,226	28,959	2,246 1,003	7,657 3,535	2,500 1,500	75 90	114,000	912
13 14	Connecticut.....	1905 1900	69	404	1,462 3,444	6,856 11,288	216,772 307,050	5,663 10,596	322,000 1,880	3,380 34
15 16	Delaware.....	1905 1900	.....	.....	80	205	378,300 223,500	9,298 7,090	.....	.....
17 18	Florida.....	1905 1900	.....	.....	.....	.....	.....	.....	.....	.....
19 20	Georgia.....	1905 1900	155	785	35 180	170 889	.....	.....	.....	.....
21 22	Idaho.....	1905 1900	696	3,063	75 100	310 400	.....	.....	234,000	1,894
23 24	Illinois.....	1905 1900	15,297	76,521	77,309 59,943	279,992 175,246	2,055,372 3,996,578	62,210 100,652	1,272,000 1,322,000	20,220 15,792
25 26	Indian Territory.....	1905 1900	180	853 .....	.....	.....	300,000	7,500	.....	.....
27 28	Indiana.....	1905 1900	8,546	39,120	8,416 23,478	30,799 68,382	1,985,725 3,320,063	56,039 89,264	45,390	554
29 30	Iowa.....	1905 1900	27,972	125,317	27,207 41,601	110,796 114,430	3,537,309 5,075,833	105,255 143,824	1,413,280 2,251,876	25,162 23,630
31 32	Kansas.....	1905 1900	23,810	95,349	14,604 17,041	54,900 44,720	770,982 706,019	21,478 26,245	480,000 10,800	3,840 134
33 34	Kentucky.....	1905 1900	887	3,575	664 1,044	2,696 2,194	.....	.....	70,000	850
35 36	Louisiana.....	1905 1900	.....	.....	.....	.....	.....	.....	.....	.....
37 38	Maine.....	1905 1900	432	2,076	658 1,042	3,518 3,784	1,093,868 1,467,960	39,933 27,177	188,470 576,500	3,050 8,498
39 40	Maryland.....	1905 1900	86	344	2,858 5,244	14,463 12,632	1,642,766 862,305	45,109 22,466	41,700	785
41 42	Massachusetts.....	1905 1900	8,185	45,594	2,037 4,720	9,183 15,613	108,450 420,773	4,555 10,663	60,800 251,192	811 4,077
43 44	Michigan.....	1905 1900	40,410	167,780	61,842 44,260	219,597 128,567	21,930,856 13,626,863	524,429 282,728	205,770 546,550	2,411 6,763
45 46	Minnesota.....	1905 1900	31,510	146,489	132,671 74,718	543,505 193,038	2,247,420 1,764,929	62,513 46,732	160,000 3,626,150	3,200 36,094
47 48	Missouri.....	1905 1900	4,530	20,063	1,843 7,016	8,477 20,147	259,760 977,378	9,113 24,562	208,000 2,500	1,920 58
49 50	Montana.....	1905 1900	10	50	145 640	616 1,920	.....	.....	9,100	175
51 52	Nebraska.....	1905 1900	9,530	42,607	51,059 49,792	198,749 127,634	224,660 258,240	7,276 7,413	67,000	584
53 54	Nevada.....	1905 1900	270	1,380 .....	.....	.....	8,225	123	59,173	1,058
55 56	New Hampshire.....	1905 1900	1,261	7,358	1,806 1,690	6,363 5,082	485,101	6,277	275,200 260,680	4,594 3,687
57 58	New Jersey.....	1905 1900	961	4,327	28,191 41,005	103,871 121,450	3,764,760 3,439,600	98,643 77,645	87,600 44,000	1,068 800
59 60	New Mexico.....	1905 1900	60	300 .....	.....	.....	300	15	1,000,000	20,000
61 62	New York.....	1905 1900	41,155	184,592	332,719 236,495	1,424,315 770,651	66,234,063 37,364,585	1,639,873 811,260	7,005,960 5,191,778	96,844 66,491
63 64	North Carolina.....	1905 1900	21	106	1,972 10,249	9,146 25,014	132,448 81,935	3,072 1,871	48,000 93,720	950 1,734

365

PRODUCTS—continued.												
Corn meal and corn flour.		Hominy and grits.		Feed.		Offal.		All other products.	Pairs of rolls.	Runs of stone.		
Barrels.	Value.	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.	Value.	Number.	Number.		
23,624,693	\$56,368,556	756,861,398	\$8,455,420	6,913,572,667	\$76,096,127	8,937,251,392	\$76,105,532	\$4,554,895	80,822	10,609	1	
27,838,811	52,167,739	291,726,145	2,567,084	7,986,159,122	63,011,421	6,328,815,746	36,679,196	4,673,751	67,141	10,939	2	
364,992	941,779	2,579,356	44,234	51,441,766	571,179	2,891,320	28,980	5,398	117	55	3	
401,133	896,901	2,250,000	21,500	23,398,946	189,988	8,214,606	62,902	31,676	95	40	4	
913	4,225			6,760,000	102,012	6,871,000	77,920		92		5	
4,484	11,318			5,832,090	59,122	3,550,475	24,110	3,600	62	6	6	
353,628	831,938	222,800	4,452	62,778,850	687,760	36,792,935	299,544	8,275	601	50	7	
273,398	519,184			37,006,064	275,367	30,543,393	178,475	15,356	543	77	8	
52,254	215,845	987,983	33,905	456,139,856	5,979,376	198,140,779	2,057,448	837,196	1,415	88	9	
92,356	215,213	3,097,560	36,835	223,887,737	2,242,136	168,214,646	1,155,775	832,289	1,146	148	10	
18,419	47,658	8,038	286	50,823,703	539,460	88,699,796	776,310	33,586	638	15	11	
54,758	104,266			104,089,230	823,448	73,720,673	494,630		501	12	12	
537,972	1,321,554			45,875,814	615,709	101,900	1,250	20,098	49	115	13	
563,222	1,121,073	1,180,000	11,800	39,493,358	459,208	1,210,218	11,542	68,091	49	217	14	
92,586	225,966	3,024,700	41,848	21,163,692	233,723	16,332,000	159,875	100	333	78	15	
135,976	296,136	1,895,972	36,694	16,395,237	112,679	5,471,318	32,167	1,858	398	133	16	
18,534	47,279	290,000	5,498	6,469,503	84,403				3	11	17	
24,336	63,468	134,000	1,640	4,991,000	62,004			1,150	3	9	18	
1,217,141	3,193,061	300,000	5,000	46,421,573	601,137	57,362,606	566,382	65,710	543	286	19	
884,211	2,099,918	5,280	110	37,211,786	324,896	26,936,392	253,861	21,404	564	372	20	
800	2,400			13,172,270	131,326	28,300,748	223,798	967	204	3	21	
455	1,260			4,513,950	41,760	21,521,030	96,182		199	10	22	
1,068,286	2,319,104	239,728,156	2,551,096	294,838,629	2,636,897	517,984,231	4,344,653	58,554	4,008	296	23	
1,589,178	2,361,940	33,701,026	263,059	408,179,124	2,897,455	406,198,948	2,329,450	111,376	3,008	307	24	
96,678	237,496			51,481,792	477,901	28,242,660	249,995		291	8	25	
93,509	131,593			23,181,480	156,398	12,670,800	82,273	542	238	2	26	
909,622	2,076,266	182,106,165	2,147,012	290,735,550	2,659,062	457,895,094	4,044,428	177,057	4,949	453	27	
1,987,719	2,601,562	96,714,589	715,640	381,406,8								

MANUFACTURES.

TABLE 13.—COMPARATIVE SUMMARY, BY STATES

STATE OR TERRITORY.	Census.	PRODUCTS—continued.							
		Wheat flour— Continued.		Rye flour.		Buckwheat flour.		Barley meal.	
		Graham.							
		Barrels.	Value.	Barrels.	Value.	Pounds.	Value.	Pounds.	Value.
65 North Dakota.....	1905	1,803	\$6,619	50	\$300				
66	1900			936	1,986	600	\$18	96,000	\$816
67 Ohio.....	1905	21,721	92,495	43,691	181,105	3,599,618	93,967	5,221,400	82,130
68	1900			39,133	114,288	3,405,955	81,575	959,200	8,713
69 Oklahoma.....	1905	2,290	10,540	458	2,152				
70	1900			950	2,527	3,000	90	2,500	40
71 Oregon.....	1905	24,016	88,641	285	1,300	11,600	385	2,693,000	32,750
72	1900			1,854	5,661	241,900	6,238	1,049,000	10,430
73 Pennsylvania.....	1905	16,783	79,805	128,506	536,576	45,117,852	1,075,989	331,600	4,106
74	1900			124,878	385,834	46,144,362	968,470	42,240	1,018
75 Rhode Island.....	1905	329	2,033	1,760	5,531			327,000	3,280
76	1900			1,374	3,660			102,760	1,972
77 South Carolina.....	1905	50	212			1,600	60		
78	1900			740	3,190				
79 South Dakota.....	1905	5,219	23,242	2,835	11,414	26,000	1,010	40,000	700
80	1900			2,744	6,651	25,000	1,000	347,000	4,980
81 Tennessee.....	1905	1,830	8,715	40	160	103,000	2,830	139,600	1,948
82	1900			113	348	49,135	1,026	29,800	435
83 Texas.....	1905	4,990	25,229	540	2,660				
84	1900			4,019	13,448				
85 Utah.....	1905	4,025	16,938	546	2,232			14,000	300
86	1900			1,007	2,558	6,000	225	465,000	6,757
87 Vermont.....	1905	1,019	4,424	365	1,594	196,350	5,825	1,100,000	14,918
88	1900			1,159	4,111	529,394	12,813	830,465	9,772
89 Virginia.....	1905	857	3,887	2,477	6,866	564,320	14,336	150,400	2,212
90	1900			8,678	22,670	1,023,010	17,350	186,900	2,643
91 Washington.....	1905	46,023	195,089	1,115	4,670			7,164,000	87,795
92	1900			4,069	12,714	300	12	1,478,200	14,400
93 West Virginia.....	1905	804	3,014	58	234	2,213,610	61,138		
94	1900			680	1,656	3,315,625	68,536	2,300	30
95 Wisconsin.....	1905	18,010	79,196	547,097	1,990,327	15,980,819	416,517	3,439,960	38,110
96	1900			611,295	1,672,630	13,205,256	309,024	5,901,000	73,373
97 Wyoming.....	1905	50	150						
98	1900							14,900	144
99 All other states.....	¹ 1905			625	2,500				
100	² 1900			200	655				

¹ Includes establishments distributed as follows: 1905, District of Columbia, 7; Mississippi, 9; grouped to avoid disclosing operations of individual establishments.

AND TERRITORIES: 1905 AND 1900—Continued.

PRODUCTS—continued.									Pairs of rolls.	Runs of stone.	
Corn meal and corn flour.		Hominy and grits.		Feed.		Offal.		All other products.			
Barrels.	Value.	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.	Value.	Number.	Number.	
		22,068	\$417	22,440,600	\$189,230	105,807,004	\$755,846	\$3,881	649	4	65
2,475	\$4,745			55,722,064	406,765	44,222,060	256,153	1,400	570	11	66
1,006,703	2,432,026	69,300,258	699,171	406,557,945	4,151,864	533,453,493	4,821,108	537,592	6,451	558	67
1,291,970	2,259,483	5,449,650	54,513	613,886,159	4,552,016	390,977,890	2,383,732	482,505	5,424	594	68
109,545	260,407			101,638,337	920,520	128,703,339	982,637	1,182	872	16	69
166,180	237,575			50,585,723	294,367	52,648,632	287,105	4,450	403	11	70
685	3,395	225,651	4,515	64,541,124	813,442	132,954,191	1,247,728	39,166	941	55	71
3,632	10,283	24,000	480	99,095,479	717,972	93,369,688	538,822	226,013	897	58	72
1,097,993	2,691,670	33,938,974	411,579	826,493,535	9,990,426	371,285,494	3,774,327	189,960	6,630	1,868	73
804,007	1,684,721	16,308,420	167,793	852,861,261	7,985,943	325,095,312	2,399,662	41,734	5,341	1,624	74
397,917	922,280			18,163,488	200,908				18	30	75
598,923	1,506,621	10,000	100	30,610,632	239,024	1,758,900	11,104	55,085	11	30	76
113,622	314,257	2,336,100	32,329	2,200,975	32,392	5,044,116	53,134	560	157	42	77
88,791	204,183	1,365,250	14,804	8,522,531	88,321	7,829,316	57,774	4,226	172	31	78
23,308	49,571			33,427,382	286,438	111,690,399	786,371	490	951	21	79
14,652	23,480			28,181,076	185,130	67,735,068	341,573	2,040	748	14	80
2,052,765	4,771,722	36,009,400	421,269	63,819,018	676,234	273,750,114	2,442,960	9,512	3,263	387	81
2,002,032	3,995,887	10,465,460	164,348	86,063,560	632,693	276,344,441	1,734,492	41,676	2,486	398	82
599,375	1,477,014	128,000	1,920	122,755,403	1,371,374	278,993,077	2,705,334	33,014	1,822	64	83
601,911	1,149,790			101,113,206	726,313	163,551,373	1,105,774	128,514	1,214	39	84
1,657	5,316	11,000	270	6,350,320	75,330	44,933,448	363,171	15,850	535	29	85
1,492	4,113	10,000	150	21,091,590	193,034	28,922,126	172,177	4,860	487	27	86
909,760	2,109,276	1,041,360	14,041	80,923,682	1,032,712	336,000	3,380	9,665	81	190	87
898,893	1,852,761	299,900	4,959	73,444,951	791,685	9,699,713	70,251	7,938	107	212	88
1,218,294	2,844,946	2,613,390	34,388	46,029,148	509,954	160,028,921	1,549,814	14,057	2,155	573	89
1,046,490	2,156,577	2,805,390	29,405	45,591,811	383,593	121,269,530	724,062	25,011	1,608	544	90
7,625	21,034	27,680	744	92,717,710	1,080,480	218,724,431	1,933,974	380,585	875	31	91
10,229	29,146			109,720,323	1,004,735	115,738,514	640,998	351,772	703	30	92
339,872	841,827	2,172,000	29,708	105,126,266	1,281,168	58,119,482	588,982	7,078	1,161	227	93
334,275	711,968	101,000	2,025	42,717,335	404,769	52,506,268	315,911	3,163	811	207	94
95,801	246,651	56,900	830	487,620,273	4,916,055	370,684,210	3,033,568	99,170	4,072	361	95
232,972	403,005	17,550,000	175,400	666,781,296	4,849,278	188,729,273	1,037,622	98,380	4,146	370	96
				1,099,000	13,044	4,601,700	43,651		86	3	97
74	204			1,768,800	17,560	4,198,000	28,998		61		98
126,544	293,981	95,000	1,248	3,957,800	43,904	7,578,000	77,280		126	20	99
309,213	581,827	4,793,000	69,887	14,825,464	112,058	3,520,000	25,760	17,644	72	35	100

*Includes establishments distributed as follows: 1900, District of Columbia, 8; Mississippi, 8; grouped to avoid disclosing operations of individual establishments.

TABLE 14.—FLOUR AND GRIST MILL PRODUCTS—DETAILED

		United States.	Alabama.	Arizona.	Arkansas.	California.	Colorado.
1	Number of establishments.....	10,051	40	9	91	122	52
2	Capital:						
3	Total.....	\$265,117,434	\$371,666	\$404,445	\$1,352,669	\$11,467,154	\$2,325,671
4	Land.....	\$22,969,996	\$35,920	\$9,000	\$96,406	\$1,219,227	\$141,167
5	Buildings.....	\$48,634,410	\$80,472	\$63,733	\$246,085	\$1,669,723	\$429,850
6	Machinery, tools, and implements.....	\$68,628,575	\$108,005	\$86,500	\$511,942	\$2,183,835	\$616,425
7	Cash and sundries.....	\$124,884,453	\$147,269	\$245,212	\$498,236	\$6,394,369	\$1,138,229
8	Proprietors and firm members.....	13,098	42	.....	116	94	26
9	Salaried officials, clerks, etc.:						
10	Total number.....	7,415	29	14	55	317	92
11	Total salaries.....	\$7,352,357	\$19,673	\$17,585	\$44,697	\$443,196	\$103,695
12	Officers of corporations—						
13	Number.....	1,450	3	6	7	45	11
14	Salaries.....	\$2,216,192	\$1,000	\$10,400	\$7,600	\$132,720	\$13,650
15	General superintendents, managers, clerks, etc.—						
16	Total number.....	5,965	26	8	48	272	81
17	Total salaries.....	\$5,136,165	\$17,773	\$7,185	\$37,097	\$310,476	\$90,045
18	Men—						
19	Number.....	5,065	24	8	46	242	79
20	Salaries.....	\$4,723,450	\$17,008	\$7,185	\$36,617	\$287,871	\$89,265
21	Women—						
22	Number.....	900	2	.....	2	30	2
23	Salaries.....	\$412,715	\$675	.....	\$480	\$22,605	\$780
24	Wage-earners, including pieceworkers, and total wages:						
25	Greatest number employed at any one time during the year.....	48,449	189	49	349	1,170	358
26	Least number employed at any one time during the year.....	34,168	161	37	257	826	193
27	Average number.....	39,110	159	36	263	889	244
28	Total wages.....	\$19,822,196	\$53,887	\$24,368	\$103,632	\$669,488	\$202,778
29	Men 16 years and over—						
30	Average number.....	38,572	158	36	262	851	244
31	Wages.....	\$19,675,724	\$53,731	\$24,368	\$103,402	\$645,348	\$202,778
32	Women 16 years and over—						
33	Average number.....	450	.....	.....	.....	38	.....
34	Wages.....	\$132,513	.....	.....	.....	\$14,140	.....
35	Children under 16 years—						
36	Average number.....	88	1	.....	1	.....	.....
37	Wages.....	\$13,959	\$156	.....	\$230	.....	.....
38	Average number of wage-earners, including pieceworkers, employed during each month:						
39	Men 16 years and over—						
40	January.....	38,471	148	33	261	797	224
41	February.....	38,330	148	33	261	800	239
42	March.....	38,458	150	30	255	817	234
43	April.....	37,211	157	32	228	801	234
44	May.....	36,370	150	30	230	834	226
45	June.....	36,375	158	36	222	842	215
46	July.....	37,668	166	37	262	871	205
47	August.....	38,805	166	39	277	904	232
48	September.....	40,089	165	41	298	923	280
49	October.....	40,789	164	40	294	896	302
50	November.....	40,434	160	40	287	874	284
51	December.....	39,864	164	41	269	844	253
52	Women 16 years and over—						
53	January.....	416	.....	.....	.....	44	.....
54	February.....	406	.....	.....	.....	38	.....
55	March.....	437	.....	.....	.....	42	.....
56	April.....	400	.....	.....	.....	41	.....
57	May.....	365	.....	.....	.....	32	.....
58	June.....	345	.....	.....	.....	30	.....
59	July.....	360	.....	.....	.....	29	.....
60	August.....	381	.....	.....	.....	31	.....
61	September.....	568	.....	.....	.....	42	.....
62	October.....	623	.....	.....	.....	42	.....
63	November.....	580	.....	.....	.....	44	.....
64	December.....	519	.....	.....	.....	41	.....
65	Children under 16 years—						
66	January.....	80	1	.....	1	.....	.....
67	February.....	80	1	.....	1	.....	.....
68	March.....	80	1	.....	1	.....	.....
69	April.....	79	1	.....	1	.....	.....
70	May.....	82	1	.....	1	.....	.....
71	June.....	84	1	.....	1	.....	.....
72	July.....	92	1	.....	1	.....	.....
73	August.....	98	1	.....	1	.....	.....
74	September.....	96	1	.....	1	.....	.....
75	October.....	96	1	.....	1	.....	.....
76	November.....	96	1	.....	1	.....	.....
77	December.....	93	1	.....	1	.....	.....
78	Miscellaneous expenses:						
79	Total.....	\$19,756,711	\$29,716	\$30,739	\$70,058	\$595,860	\$272,570
80	Rent of works.....	\$693,356	\$9,200	\$4,800	\$2,590	\$20,825	\$2,680
81	Taxes, not including internal revenue.....	\$1,503,589	\$2,933	\$2,980	\$8,629	\$60,215	\$23,224
82	Rent of offices, interest, insurance, and all other sundry expenses, not hitherto included.....	\$17,464,548	\$15,983	\$22,959	\$58,839	\$514,704	\$246,666
83	Contract work.....	\$95,218	\$1,600	.....	.....	\$116	.....
84	Materials used:						
85	Aggregate cost.....	\$619,971,161	\$1,556,392	\$641,201	\$3,156,600	\$17,132,239	\$4,797,409
86	Wheat—						
87	Bushels.....	494,095,083	138,420	358,747	1,867,689	11,825,938	4,635,278
88	Cost.....	\$456,306,503	\$151,325	\$380,670	\$1,740,965	\$10,541,587	\$3,855,777
89	Corn—						
90	Bushels.....	178,217,321	2,258,428	5,816	2,400,269	825,432	922,926
91	Cost.....	\$91,758,882	\$1,291,547	\$4,558	\$1,216,047	\$569,286	\$449,370
92	Rye—						
93	Bushels.....	11,480,370	500	.....	300	117,632	13,289
94	Cost.....	\$7,619,473	\$500	.....	\$150	\$91,303	\$7,620
95	Buckwheat—						
96	Bushels.....	6,531,305	.....	.....	.....	12,240	100
97	Cost.....	\$3,948,160	.....	.....	.....	\$12,506	\$60
98	Barley—						
99	Bushels.....	18,628,552	.....	320,938	.....	8,696,473	65,612
100	Cost.....	\$8,847,684	.....	\$211,490	.....	\$4,471,641	\$32,183
101	Oats—						
102	Bushels.....	45,381,009	23,400	.....	200	1,045,740	114,392
103	Cost.....	\$16,199,579	\$8,873	.....	\$60	\$526,877	\$43,047

SUMMARY, BY STATES AND TERRITORIES: 1905.

Connecticut.	Delaware.	Florida.	Georgia.	Idaho.	Illinois.	Indian Territory.	Indiana.	Iowa.	Kansas.	Kentucky.	
80	47	7	114	28	363	33	566	276	354	388	1
\$1,335,822	\$484,171	\$77,684	\$1,895,718	\$685,397	\$14,128,467	\$889,451	\$11,906,761	\$5,216,059	\$13,816,887	\$7,342,417	2
\$152,377	\$47,690	\$12,550	\$219,630	\$39,256	\$896,760	\$31,650	\$831,430	\$553,440	\$807,982	\$414,979	3
\$340,866	\$89,500	\$12,365	\$362,575	\$127,739	\$2,824,240	\$196,847	\$2,214,238	\$1,105,395	\$2,431,205	\$1,188,107	4
\$158,530	\$141,669	\$14,240	\$575,973	\$240,947	\$3,592,236	\$367,788	\$3,501,317	\$1,714,220	\$3,691,716	\$1,871,910	5
\$684,049	\$205,312	\$38,529	\$737,540	\$277,455	\$6,815,231	\$293,166	\$5,359,770	\$1,843,004	\$6,885,984	\$3,867,421	6
58	65	8	146	22	412	45	830	377	429	617	7
46	12	3	102	21	465	40	345	173	453	254	8
\$39,044	\$7,930	\$2,700	\$95,673	\$18,625	\$508,767	\$39,526	\$303,321	\$135,007	\$451,609	\$192,744	9
10	2	-----	25	7	103	4	74	35	107	43	10
\$9,700	\$2,600	-----	\$38,020	\$6,750	\$180,146	\$3,600	\$96,585	\$47,490	\$147,095	\$47,490	11
20	10	3	77	14	362	36	271	138	346	211	12
\$29,344	\$5,330	\$2,700	\$57,653	\$11,875	\$328,621	\$35,926	\$206,736	\$87,941	\$304,514	\$145,254	13
31	9	8	73	14	322	35	227	122	296	184	14
\$26,938	\$4,914	\$2,700	\$55,693	\$11,875	\$309,714	\$35,026	\$189,533	\$81,941	\$283,363	\$135,247	15
5	1	-----	4	-----	40	1	44	16	50	27	16
\$2,406	\$416	-----	\$1,960	-----	\$18,837	\$900	\$17,203	\$6,000	\$21,151	\$10,007	17
197	147	17	567	100	2,919	311	2,751	935	2,442	1,741	18
163	130	14	396	78	2,100	121	1,923	749	1,574	1,245	19
167	137	13	464	84	2,410	161	2,289	770	1,831	1,373	20
\$85,874	\$58,425	\$5,515	\$146,095	\$66,864	\$1,210,865	\$78,238	\$1,091,428	\$399,108	\$1,024,465	\$515,158	21
159	137	13	462	84	2,398	161	2,271	762	1,810	1,337	22
\$83,614	\$58,425	\$5,515	\$145,840	\$66,864	\$1,208,362	\$78,238	\$1,084,828	\$395,803	\$1,020,791	\$507,660	23
8	-----	-----	-----	-----	7	-----	16	7	19	28	24
\$2,260	-----	-----	-----	-----	\$1,916	-----	\$6,320	\$3,005	\$3,330	\$6,401	25
-----	-----	-----	2	-----	5	-----	2	1	2	8	26
-----	-----	-----	\$255	-----	\$587	-----	\$280	\$300	\$344	\$1,097	27
166	130	13	460	88	2,337	164	2,216	742	1,800	1,220	28
157	132	13	465	89	2,340	151	2,252	742	1,814	1,236	29
160	135	13	470	82	2,382	155	2,245	731	1,753	1,250	30
153	133	13	449	77	2,308	157	2,162	711	1,694	1,240	31
155	138	13	450	77	2,268	155	2,148	720	1,663	1,264	32
155	136	12	461	77	2,274	152	2,147	715	1,657	1,292	33
154	139	13	470	72	2,368	153	2,314	731	1,665	1,510	34
155	138	13	472	82	2,499	171	2,374	781	1,810	1,530	35
157	141	13	463	90	2,531	173	2,342	813	1,944	1,471	36
160	141	12	467	91	2,487	160	2,385	818	1,988	1,379	37
166	138	14	460	90	2,505	169	2,331	826	2,040	1,337	38
170	135	14	457	93	2,477	163	2,336	814	1,892	1,315	39
8	-----	-----	-----	-----	7	-----	16	2	10	28	40
8	-----	-----	-----	-----	7	-----	16	2	11	25	41
8	-----	-----	-----	-----	7	-----	16	1	7	28	42
8	-----	-----	-----	-----	7	-----	16	1	7	28	43
8	-----	-----	-----	-----	7	-----	17	3	7	28	44
8	-----	-----	-----	-----	7	-----	15	4	7	28	45
8	-----	-----	-----	-----	7	-----	14	5	8	28	46
8	-----	-----	-----	-----	7	-----	17	13	28	28	47
8	-----	-----	-----	-----	7	-----	15	13	35	28	48
8	-----	-----	-----	-----	7	-----	17	14	43	28	49
8	-----	-----	-----	-----	7	-----	16	13	36	28	50
8	-----	-----	-----	-----	7	-----	17	13	29	28	51
-----	-----	-----	2	-----	4	-----	2	1	2	5	52
-----	-----	-----	2	-----	5	-----	2	1	2	5	53
-----	-----	-----	2	-----	5	-----	2	1	1	5	54
-----	-----	-----	2	-----	5	-----	2	1	1	5	55
-----	-----	-----	2	-----	5	-----	2	1	1	5	56
-----	-----	-----	2	-----	5	-----	2	1	-----	9	57
-----	-----	-----	2	-----	5	-----	2	1	1	9	58
-----	-----	-----	2	-----	5	-----	2	1	1	11	59
-----	-----	-----	2	-----	5	-----	2	1	1	12	60
-----	-----	-----	2	-----	5	-----	2	1	4	10	61
-----	-----	-----	2	-----	5	-----	2	1	4	10	62
-----	-----	-----	2	-----	5	-----	2	1	3	10	63
-----	-----	-----	2	-----	5	-----	2	1	2	10	63
\$41,010	\$48,415	\$2,967	\$197,123	\$56,255	\$805,646	\$61,599	\$793,605	\$322,960	\$1,077,391	\$609,530	64
\$5,243	\$11,476	\$510	\$2,240	\$2,100	\$22,559	\$30	\$12,437	\$12,555	\$29,493	\$5,990	65
\$7,287	\$1,644	\$607	\$15,129	\$6,990	\$64,632	\$4,746	\$89,331	\$33,844	\$82,501	\$40,607	66
\$28,480	\$35,295	\$1,850	\$179,704	\$47,165	\$715,355	\$56,823	\$684,834	\$276,076	\$965,397	\$559,283	67
-----	-----	-----	\$50	-----	\$3,100	-----	\$7,003	\$485	-----	\$3,650	68
\$1,690,486	\$1,315,404	\$112,038	\$7,264,804	\$1,315,398	\$34,929,657	\$2,156,000	\$31,342,117	\$10,317,008	\$36,895,122	\$15,099,049	69
6,531	832,689	-----	3,186,908	1,509,784	28,380,202	1,554,070	25,156,032	8,689,866	36,197,651	12,611,709	70
\$6,304	\$818,106	-----	\$3,618,164	\$1,114,237	\$26,637,126	\$1,437,938	\$24,308,577	\$7,889,237	\$30,634,839	\$12,082,301	71
2,289,271	759,523	174,936	5,138,934	10,000	12,816,823	1,265,105	11,177,094	2,463,049	8,790,875	4,219,724	72
\$1,317,763	\$395,437	\$100,296	\$3,211,483	\$6,820	\$5,746,949	\$540,089	\$5,182,341	\$1,011,436	\$3,783,639	\$2,100,636	73
11,326	350	-----	884	1,650	429,135	-----	151,310	203,566	114,528	5,786	74
\$8,463	\$198	-----	\$639	\$690	\$302,381	-----	\$88,729	\$116,855	\$73,317	\$3,406	75
6,750	14,050	-----	-----	-----	67,058	-----	72,951	130,160	22,246	-----	76
\$4,742	\$7,960	-----	-----	-----	\$46,190	-----	\$46,265	\$84,791	\$17,496	-----	77
11,060	-----	-----	249,241	57,468	-----	-----	26,330	328,719	41,051	2,000	78
\$5,675	-----	-----	\$104,506	\$25,055	-----	-----	\$12,036	\$123,881	\$14,715	\$1,000	79
770,136	8,550	21,100	59,145	24,600	586,285	-----	886,992	1,293,690	98,490	135,321	80
\$299,360	\$3,638	\$9,041	\$24,745	\$3,395	\$183,239	-----	\$280,369	\$377,019	\$32,795	\$41,457	81

TABLE 14.—FLOUR AND GRIST MILL PRODUCTS—DETAILED

		United States.	Alabama.	Arizona.	Arkansas.	California.	Colorado.
	Materials used—Continued.						
	Aggregate cost—Continued.						
82	Other grain—						
83	Bushels.....	612,089	250	-----	-----	100,159	1,466
84	Cost.....	\$384,786	\$163	-----	-----	\$157,415	\$733
85	Barrels (purchased).....	\$4,545,074	\$6,995	-----	\$4,248	\$29,960	\$900
86	Sacks (purchased).....	\$16,807,001	\$66,088	\$19,179	\$116,506	\$447,264	\$240,835
87	Cooperage stock and cloth and paper for sacks.....	\$1,613,332	\$575	-----	\$8,781	\$8,626	\$162
88	Fuel.....	\$5,999,987	\$22,942	\$8,606	\$45,418	\$99,389	\$52,205
89	Rent of power and heat.....	\$342,649	\$860	\$2,400	\$700	\$69,866	-----
90	Mill supplies.....	\$909,759	\$2,891	\$1,371	\$6,706	\$18,567	\$6,019
91	All other materials.....	\$1,585,314	\$1,133	\$927	\$12,156	\$22,051	\$6,919
	Freight.....	\$3,102,978	\$2,500	\$12,000	\$4,863	\$65,901	\$101,579
92	Products:						
	Aggregate value.....	\$713,033,395	\$1,750,452	\$743,124	\$3,702,495	\$20,202,542	\$5,783,421
93	Wheat flour—						
94	Total barrels.....	104,013,278	28,483	72,898	378,030	2,439,499	970,088
	Total value.....	\$480,298,514	\$158,320	\$422,111	\$1,870,526	\$10,611,671	\$4,377,477
	White—						
95	Barrels.....	103,608,350	28,483	72,459	377,760	2,408,358	962,862
96	Value.....	\$478,484,601	\$158,320	\$419,299	\$1,869,206	\$10,479,131	\$4,348,518
	Graham—						
97	Barrels.....	404,928	-----	439	270	31,141	7,226
98	Value.....	\$1,773,913	-----	\$2,812	\$1,320	\$132,540	\$28,959
	Rye flour—						
99	Barrels.....	1,503,100	100	-----	-----	22,733	2,246
100	Value.....	\$5,892,108	\$562	-----	-----	\$105,946	\$7,657
	Buckwheat flour—						
101	Pounds.....	175,354,062	-----	-----	-----	352,382	2,500
102	Value.....	\$4,379,359	-----	-----	-----	\$12,753	\$75
	Barley meal—						
103	Pounds.....	68,508,655	-----	8,773,000	-----	27,194,515	114,000
104	Value.....	\$922,884	-----	\$136,846	-----	\$348,402	\$912
	Corn meal and corn flour—						
105	Barrels.....	23,624,643	364,992	913	353,628	52,254	18,419
106	Value.....	\$56,368,556	\$941,779	\$4,225	\$831,938	\$215,845	\$47,658
	Hominy and grits—						
107	Pounds.....	756,861,398	2,579,356	-----	222,800	987,983	8,038
108	Value.....	\$8,455,420	\$44,234	-----	\$4,452	\$33,905	\$286
	Feed—						
109	Pounds.....	6,913,572,697	51,441,766	6,760,000	62,778,850	456,139,856	50,823,703
110	Value.....	\$76,096,127	\$571,179	\$102,012	\$687,760	\$5,979,376	\$539,460
	Offal—						
111	Pounds.....	8,937,251,392	2,891,320	6,871,000	36,792,935	198,140,779	88,699,796
112	Value.....	\$76,105,532	\$28,980	\$77,930	\$299,544	\$2,057,448	\$776,310
113	All other products.....	\$4,554,895	\$5,398	-----	\$8,275	\$837,196	\$33,586
	Machinery and capacity:						
114	Pairs of rolls, number.....	80,822	117	92	601	1,415	638
115	Runs of stone, number.....	10,609	55	-----	50	88	15
116	Estimated maximum capacity per day of twenty-four hours, barrels.....	1,432,457	-----	-----	-----	-----	-----
	Power:						
117	Number of establishments reporting.....	10,018	40	9	91	122	59
118	Total horsepower.....	780,042	2,134	465	4,435	11,509	5,933
	Owned—						
	Engines—						
	Steam—						
119	Number.....	6,539	36	8	84	74	42
120	Horsepower.....	473,689	1,776	266	3,851	7,132	4,455
	Gas or gasoline—						
121	Number.....	1,006	-----	-----	-----	14	1
122	Horsepower.....	26,326	-----	-----	-----	240	21
	Water wheels—						
123	Number.....	7,261	12	4	12	24	24
124	Horsepower.....	258,111	278	172	534	875	1,451
	Water motors—						
125	Number.....	12	-----	-----	-----	-----	-----
126	Horsepower.....	241	-----	-----	-----	-----	-----
	Electric motors—						
127	Number.....	232	1	-----	1	5	1
128	Horsepower.....	4,724	10	-----	5	505	6
	Other power—						
129	Number.....	13	-----	-----	-----	-----	-----
130	Horsepower.....	388	-----	-----	-----	-----	-----
	Rented—						
	Electric motors—						
131	Number.....	389	4	2	1	54	-----
132	Horsepower.....	15,584	70	27	30	2,720	-----
133	Other kind, horsepower.....	979	-----	-----	15	37	-----
134	Furnished to other establishments, horsepower.....	3,534	-----	-----	-----	55	-----

FLOUR AND GRIST MILL PRODUCTS.

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SUMMARY, BY STATES AND TERRITORIES: 1905—Continued.

Connecticut.	Delaware.	Florida.	Georgia.	Idaho.	Illinois.	Indian Territory.	Indiana.	Iowa.	Kansas.	Kentucky.	
16,766			500		1,676	5,000	14,930	50,514	23,020		82
\$8,183			\$500		\$698	\$1,500	\$6,290	\$21,207	\$9,145		83
\$165	\$12,791		\$41,962	\$459	\$121,083	\$275	\$285,311	\$4,511	\$85,133	\$186,390	84
\$11,137	\$33,293	\$1,504	\$243,259	\$53,717	\$769,266	\$84,377	\$551,703	\$280,330	\$1,615,240	\$405,294	85
\$214	\$1,230		\$9,594		\$548,237		\$20,742	\$4,621	\$58,711	\$42,757	86
\$13,358	\$13,964	\$934	\$55,191	\$19,574	\$306,260	\$26,393	\$375,523	\$145,793	\$398,185	\$176,772	87
\$3,198			\$240	\$1,552	\$9,536		\$4,602	\$7,199	\$12,414	\$350	88
\$1,908	\$3,095	\$263	\$7,245	\$1,953	\$68,136	\$3,739	\$45,935	\$23,210	\$48,877	\$19,304	89
\$9,268	\$436		\$41,162	\$545	\$91,848	\$1,152	\$61,664	\$25,910	\$7,555	\$17,778	90
\$748	\$25,256		\$10,620	\$2,950	\$73,353	\$60,537	\$72,030	\$201,008	\$103,061	\$21,604	91
\$1,981,774	\$1,536,604	\$137,180	\$8,178,926	\$1,584,473	\$39,892,127	\$2,582,657	\$36,473,543	\$12,099,493	\$42,034,019	\$18,007,786	92
1,374	168,944		671,809	309,476	5,954,680	327,060	5,181,906	1,717,688	7,633,415	2,641,504	93
\$7,164	\$865,794		\$3,747,466	\$1,225,672	\$27,619,401	\$1,617,265	\$25,282,880	\$3,371,616	\$32,627,365	\$13,205,196	94
1,305	168,944		671,654	308,780	5,939,383	326,880	5,173,360	1,689,716	7,609,605	2,640,617	95
\$6,760	\$865,794		\$3,746,681	\$1,222,609	\$27,542,880	\$1,616,412	\$25,243,760	\$3,246,299	\$32,532,016	\$13,201,621	96
69			155	696	15,297	180	8,546	27,972	23,810	887	97
\$404			\$785	\$3,063	\$76,521	\$853	\$39,120	\$125,317	\$95,349	\$3,575	98
1,462			35	75	77,309		8,416	27,207	14,604	664	99
\$6,856			\$170	\$310	\$279,992		\$30,799	\$110,796	\$54,900	\$2,696	100
216,772	378,300				2,055,372		1,985,725	3,537,309	770,982		101
\$5,663	\$9,298				\$62,210		\$56,039	\$105,255	\$21,478		102
322,000					1,272,000			1,413,280	480,000	70,000	103
\$3,380					\$20,220			\$25,162	\$3,840	\$850	104
537,972	92,586	18,534	1,217,141	800	1,068,286	96,678	909,622	210,926	605,413	1,003,020	105
\$1,321,554	\$225,966	\$47,279	\$3,193,061	\$2,400	\$2,319,104	\$237,496	\$2,076,266	\$453,045	\$1,292,243	\$2,314,364	106
	3,024,700	290,000	300,000		239,728,156		182,106,165	2,399,265	9,882,080	253,000	107
	\$41,848	\$5,498	\$5,000		\$2,551,096		\$2,147,012	\$28,944	\$118,146	\$3,262	108
45,875,814	21,163,692	6,469,503	46,421,573	13,172,270	294,838,629	51,481,792	290,735,550	138,635,732	358,902,898	38,539,891	109
\$615,709	\$233,723	\$84,403	\$601,137	\$131,326	\$2,636,897	\$477,901	\$2,659,062	\$1,416,725	\$3,196,104	\$423,233	110
101,900	16,332,000		57,362,606	28,300,748	517,984,231	28,242,660	457,895,094	161,095,397	647,285,277	228,454,827	111
\$1,350	\$159,875		\$566,382	\$223,798	\$4,344,653	\$249,995	\$4,044,428	\$1,409,111	\$4,682,886	\$2,049,260	112
\$20,098	\$100		\$65,710	\$967	\$58,554		\$177,057	\$178,839	\$37,057	\$8,925	113
49	333	3	543	204	4,008	291	4,949	2,370	3,789	3,294	114
115	78	11	286	3	296	8	453	230	182	276	115
											116
86	47	7	114	28	363	33	566	273	351	388	117
3,115	2,827	167	8,396	1,963	38,267	2,268	42,333	20,077	35,141	23,391	118
29	20	2	61	17	396	32	527	220	270	349	119
1,185	885	60	3,744	963	34,322	2,173	34,571	13,425	26,888	18,789	120
10	6	2	4		40	2	49	22	74	21	121
306	101	22	68		610	28	1,914	378	1,307	582	122
51	72	3	96	16	53	2	155	187	105	134	123
1,509	1,841	85	4,513	890	2,342	55	5,443	5,838	5,946	3,790	124
											125
											126
2			2		14	3	10	8	13	4	127
7			55		109	12	173	28	486	135	128
					6						129
					200						130
8			1	110	25		7	5	21	4	131
175			16		639		232	408	514	95	132
30					45						133
					101		305	200	65	10	134

TABLE 14.—FLOUR AND GRIST MILL PRODUCTS—DETAILED

	Louisiana.	Maine.	Maryland.	Massachu- setts.	Michigan.	Minnesota.
1 Number of establishments.....	3	161	202	142	405	363
2 Capital:						
3 Total.....	\$50,200	\$1,422,671	\$2,717,258	\$1,881,478	\$7,654,270	\$34,857,366
4 Land.....	\$4,000	\$169,560	\$222,186	\$148,137	\$1,120,677	\$1,546,330
5 Buildings.....	\$14,500	\$307,887	\$553,297	\$406,629	\$1,533,013	\$4,108,366
6 Machinery, tools, and implements.....	\$9,700	\$254,398	\$751,534	\$280,461	\$2,398,745	\$9,892,141
7 Cash and sundries.....	\$22,000	\$690,826	\$1,190,241	\$1,046,251	\$2,601,835	\$19,310,529
8 Proprietors and firm members.....	4	209	249	181	568	416
9 Salaried officials, clerks, etc.:						
10 Total number.....	1	28	91	41	277	836
11 Total salaries.....	\$650	\$17,574	\$72,969	\$25,472	\$232,736	\$906,274
12 Officers of corporations—						
13 Number.....		11	13	11	34	108
14 Salaries.....		\$9,223	\$17,789	\$5,750	\$49,802	\$234,821
15 General superintendents, managers, clerks, etc.—						
16 Total number.....	1	17	78	35	243	728
17 Total salaries.....	\$650	\$8,351	\$55,180	\$19,722	\$182,834	\$671,453
18 Men—						
19 Number.....	1	8	74	19	182	562
20 Salaries.....	\$650	\$5,879	\$54,068	\$13,693	\$158,832	\$574,492
21 Women—						
22 Number.....		9	4	16	61	166
23 Salaries.....		\$2,472	\$1,112	\$6,029	\$24,002	\$96,961
24 Wage-earners, including pieceworkers, and total wages:						
25 Greatest number employed at any one time during the year.....	6	293	679	325	1,800	5,506
26 Least number employed at any one time during the year.....	6	222	524	273	1,386	3,227
27 Average number.....	4	234	550	277	1,508	4,481
28 Total wages.....	\$1,738	\$108,382	\$212,332	\$154,065	\$766,690	\$2,650,518
29 Men 16 years and over—						
30 Average number.....	4	233	543	276	1,480	4,440
31 Wages.....	\$1,738	\$108,070	\$211,225	\$153,565	\$759,590	\$2,637,035
32 Women 16 years and over—						
33 Average number.....			4	1	27	38
34 Wages.....			\$667	\$500	\$6,910	\$13,166
35 Children under 16 years—						
36 Average number.....		1	3		1	3
37 Wages.....		\$312	\$440		\$250	\$617
38 Average number of wage-earners, including pieceworkers, employed during each month:						
39 Men 16 years and over—						
40 January.....	4	231	529	282	1,519	4,680
41 February.....	4	228	503	277	1,506	4,605
42 March.....	4	239	517	285	1,502	4,544
43 April.....	4	241	505	279	1,444	4,312
44 May.....	4	243	505	282	1,399	4,001
45 June.....	4	228	507	274	1,397	4,226
46 July.....	4	227	566	268	1,378	4,149
47 August.....	4	213	582	269	1,426	4,081
48 September.....	4	228	590	270	1,503	4,360
49 October.....	4	233	597	273	1,564	4,741
50 November.....	4	245	583	273	1,564	4,695
51 December.....	4	240	532	280	1,558	4,886
52 Women 16 years and over—						
53 January.....			7	1	42	42
54 February.....			5	1	42	37
55 March.....			4	1	43	30
56 April.....			4	1	44	37
57 May.....			4	1	11	35
58 June.....			4	1	10	38
59 July.....			4	1	1	38
60 August.....			4	1	1	36
61 September.....			3	1	2	37
62 October.....			3	1	44	39
63 November.....			3	1	43	41
64 December.....			3	1	41	40
65 Children under 16 years—						
66 January.....			3			3
67 February.....			3			3
68 March.....			3			3
69 April.....			3			3
70 May.....		4	3			3
71 June.....		4	3			3
72 July.....		4	3			3
73 August.....		4	3		2	3
74 September.....			3		2	3
75 October.....			3		2	3
76 November.....			3		2	3
77 December.....			3		2	3
78 Miscellaneous expenses:						
79 Total.....	\$2,495	\$57,941	\$238,525	\$92,980	\$541,168	\$4,471,676
80 Rent of works.....	\$600	\$8,801	\$17,160	\$22,591	\$19,737	\$65,380
81 Taxes, not including internal revenue.....	\$175	\$10,820	\$14,283	\$14,283	\$69,270	\$176,755
82 Rent of offices, interest, insurance, and all other sundry expenses not hitherto included.....	\$1,720	\$38,320	\$204,824	\$56,046	\$446,572	\$4,204,082
83 Contract work.....			\$1,650	\$00	\$5,589	\$25,459
84 Materials used:						
85 Aggregate cost.....	\$53,360	\$3,442,115	\$6,209,983	\$4,112,989	\$23,414,207	\$109,060,973
86 Wheat—						
87 Bushels.....		136,230	5,110,510	37,429	19,092,087	110,046,339
88 Cost.....		\$135,156	\$4,696,624	\$39,984	\$17,047,048	\$98,671,534
89 Corn—						
90 Bushels.....	80,430	4,545,168	1,898,891	6,247,591	6,256,432	2,646,411
91 Cost.....	\$46,758	\$2,749,466	\$993,781	\$3,649,038	\$3,121,460	\$1,159,531
92 Rye—						
93 Bushels.....		3,830	87,213	80,313	922,684	977,058
94 Cost.....		\$3,496	\$56,157	\$57,874	\$502,385	\$621,886
95 Buckwheat—						
96 Bushels.....		123,876	60,319	5,753	761,313	85,225
97 Cost.....		\$54,012	\$37,341	\$3,718	\$429,668	\$49,047
98 Barley—						
99 Bushels.....		138,425	3,844	23,358	178,715	2,099,104
100 Cost.....		\$71,274	\$1,804	\$11,681	\$85,998	\$718,483
101 Oats—						
102 Bushels.....	5,555	880,238	239,944	685,348	2,680,717	4,571,448
103 Cost.....	\$2,500	\$366,561	\$90,624	\$289,787	\$1,019,649	\$1,352,464

FLOUR AND GRIST MILL PRODUCTS.

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SUMMARY, BY STATES AND TERRITORIES: 1905—Continued.

Missouri.	Montana.	Nebraska.	Nevada.	New Hamp- shire.	New Jersey.	New Mexico.	New York.	North Caro- lina.	North Da- kota.	Ohio.	
582	12	234	9	72	182	13	825	234	56	694	I
\$14,834,042	\$991,191	\$6,496,878	\$411,368	\$1,008,936	\$2,907,250	\$139,420	\$24,819,316	\$1,990,346	\$2,383,673	\$14,931,065	2
\$1,124,108	\$101,020	\$625,655	\$59,400	\$114,235	\$386,109	\$9,120	\$3,505,813	\$219,895	\$107,990	\$1,224,877	3
\$2,595,715	\$253,671	\$1,537,202	\$120,500	\$184,450	\$655,950	\$29,800	\$4,408,026	\$335,279	\$456,548	\$3,542,325	4
\$3,855,708	\$168,367	\$1,971,698	\$66,840	\$121,378	\$564,329	\$62,100	\$4,682,402	\$856,864	\$644,558	\$4,890,097	5
\$7,258,511	\$468,133	\$2,362,323	\$164,628	\$588,873	\$1,300,802	\$37,900	\$12,223,075	\$578,308	\$1,176,579	\$5,273,766	6
752	6	294	8	109	221	14	1,067	376	66	1,003	7
458	36	167	11	11	48	2	520	72	76	438	8
\$457,714	\$46,748	\$153,176	\$7,500	\$8,676	\$36,699	\$1,500	\$594,451	\$46,790	\$84,915	\$422,332	9
129	1	33	2	-----	11	1	89	23	15	102	10
\$189,710	\$1,000	\$43,670	\$2,460	-----	\$14,250	\$900	\$176,420	\$16,780	\$19,790	\$165,701	11
329	35	134	4	11	37	1	431	49	61	336	12
\$268,004	\$45,748	\$109,506	\$5,040	\$8,676	\$22,449	\$600	\$418,031	\$30,010	\$65,125	\$256,631	13
281	32	117	3	11	29	-----	354	44	58	261	14
\$248,799	\$43,828	\$102,310	\$4,560	\$7,800	\$19,530	-----	\$382,722	\$28,357	\$63,923	\$227,740	15
115	3	17	1	3	8	1	77	5	11	75	16
\$19,205	\$1,920	\$7,196	\$480	\$876	\$2,919	\$600	\$35,309	\$1,653	\$1,202	\$28,891	17
3,096	75	1,071	33	166	507	37	3,786	709	383	3,188	18
1,978	65	776	15	137	442	23	2,713	495	289	2,480	19
2,345	67	863	17	128	454	29	3,063	519	312	2,700	20
\$1,090,843	\$57,096	\$468,268	\$16,098	\$63,454	\$210,689	\$14,352	\$1,553,122	\$160,329	\$200,439	\$1,339,568	21
2,333	67	821	17	128	451	29	2,966	513	312	2,606	22
\$1,087,459	\$57,096	\$452,399	\$16,098	\$63,454	\$210,133	\$14,352	\$1,531,841	\$159,636	\$200,439	\$1,312,153	23
6	-----	42	-----	-----	2	-----	97	-----	-----	91	24
\$2,196	-----	\$15,869	-----	-----	\$400	-----	\$21,281	-----	-----	\$26,923	25
6	-----	-----	-----	-----	1	-----	-----	6	-----	3	26
\$1,188	-----	-----	-----	-----	\$156	-----	-----	\$693	-----	\$492	27
2,251	64	820	12	134	456	26	3,011	498	313	2,597	28
2,222	63	827	12	136	454	26	3,043	494	315	2,612	29
2,356	64	837	12	140	448	25	3,151	492	309	2,591	30
2,194	66	810	14	139	439	28	3,083	490	275	2,576	31
2,019	65	785	14	132	444	27	2,960	503	282	2,522	32
2,055	65	774	15	130	446	27	2,854	514	286	2,485	33
2,328	66	782	15	118	450	28	2,860	518	276	2,525	34
2,550	65	797	21	117	451	30	2,889	534	275	2,626	35
2,599	73	847	26	117	455	37	2,831	538	335	2,695	36
2,569	73	872	26	122	456	33	2,970	534	360	2,698	37
2,466	73	873	19	124	452	29	3,036	526	368	2,686	38
2,387	67	828	18	127	461	32	2,904	515	350	2,659	39
8	-----	32	-----	-----	2	-----	75	-----	-----	75	40
5	-----	37	-----	-----	2	-----	70	-----	-----	77	41
6	-----	45	-----	-----	2	-----	88	-----	-----	84	42
6	-----	28	-----	-----	2	-----	76	-----	-----	75	43
5	-----	33	-----	-----	2	-----	74	-----	-----	79	44
5	-----	15	-----	-----	2	-----	79	-----	-----	73	45
4	-----	33	-----	-----	2	-----	83	-----	-----	76	46
4	-----	9	-----	-----	2	-----	82	-----	-----	91	47
5	-----	74	-----	-----	2	-----	133	-----	-----	139	48
7	-----	57	-----	-----	2	-----	152	-----	-----	107	49
7	-----	51	-----	-----	2	-----	129	-----	-----	128	50
7	-----	53	-----	-----	2	-----	123	-----	-----	88	51
6	-----	-----	-----	-----	1	-----	-----	5	-----	3	52
11	-----	-----	-----	-----	1	-----	-----	5	-----	11	53
6	-----	-----	-----	-----	1	-----	-----	5	-----	3	54
6	-----	-----	-----	-----	1	-----	-----	4	-----	3	55
5	-----	-----	-----	-----	1	-----	-----	5	-----	3	56
4	-----	-----	-----	-----	1	-----	-----	5	-----	3	57
4	-----	-----	-----	-----	1	-----	-----	7	-----	11	58
6	-----	-----	-----	-----	1	-----	-----	8	-----	3	59
7	-----	-----	-----	-----	1	-----	-----	7	-----	3	60
7	-----	-----	-----	-----	1	-----	-----	7	-----	3	61
7	-----	-----	-----	-----	1	-----	-----	7	-----	3	62
8	-----	-----	-----	-----	1	-----	-----	7	-----	3	63
7	-----	-----	-----	-----	1	-----	-----	7	-----	3	64
\$960,217	\$88,552	\$390,587	\$20,333	\$35,106	\$144,522	\$6,384	\$1,726,638	\$98,802	\$214,019	\$992,625	64
\$31,677	-----	88,330	\$546	\$6,655	\$14,845	\$1,080	\$96,036	\$5,797	\$500	\$33,452	65
\$60,049	\$6,307	\$33,509	\$1,629	\$6,542	\$14,648	\$1,929	\$111,299	\$11,522	\$14,020	\$112,203	66
\$848,332	\$82,245	\$348,748	\$18,158	\$21,772	\$113,879	\$3,375	\$1,519,053	\$81,503	\$199,499	\$836,227	67
\$20,159	-----	-----	-----	\$137	\$1,150	-----	\$250	-----	-----	\$10,743	68
\$32,927,827	\$1,592,385	\$10,153,429	\$431,817	\$2,348,332	\$4,521,713	\$311,857	\$47,372,493	\$5,985,862	\$5,462,541	\$35,626,232	69
29,507,080	1,462,979	8,658,038	237,190	382,785	1,711,041	250,676	26,036,183	3,453,799	5,844,493	27,610,184	70
\$26,899,942	\$1,410,091	\$6,955,794	\$228,940	\$458,599	\$1,717,855	\$239,496	\$26,508,780	\$3,789,471	\$4,889,166	\$27,368,062	71
8,013,969	3,117	4,643,455	7,299	2,807,347	3,523,460	73,777	19,747,956	2,966,052	4,300	10,443,366	72
\$3,615,528	\$1,969	\$1,845,619	\$4,699	\$1,641,162	\$2,014,932	\$49,907	\$11,030,517	\$1,825,724	\$2,150	\$5,027,378	73
49,853	1,000	375,093	1,432	20,981	396,105	-----	2,109,653	59,037	300	281,456	74
\$28,772	\$650	\$203,496	\$933	\$12,369	\$256,878	-----	\$1,498,573	\$43,025	\$210	\$193,211	75
7,501	-----	7,339	-----	-----	141,757	10	2,398,354	12,850	-----	133,286	76
\$6,742	-----	\$5,198	-----	-----	\$86,254	\$10	\$1,493,446	\$7,520	-----	\$80,796	77
31,400	12,329	149,204	270,593	10,300	17,850	350	450,524	1,100	264,700	307,904	78
\$13,297	\$6,123	\$45,324	\$156,001	\$5,614	\$8,609	\$357	\$228,926	\$850	\$87,941	\$155,800	79
351,986	60,600	984,210	65,261	424,860	677,347	1,240	9,971,846	59,258	294,413	3,042,451	80
\$114,932	\$23,000	\$345,378	\$30,183	\$182,091	\$271,082	\$620	\$3,841,647	\$26,353	\$79,015	\$1,037,117	81

TABLE 14.—FLOUR AND GRIST MILL PRODUCTS—DETAILED

	Louisiana.	Maine.	Maryland.	Massachu- setts.	Michigan.	Minnesota.
Materials used—Continued.						
Aggregate cost—Continued.						
Other grains—						
82 Bushels.....		4,000	2,350	8,510	24,261	73,512
83 Cost.....		\$3,000	\$1,210	\$3,890	\$11,517	\$25,507
84 Barrels (purchased).....		\$170	\$92,569	\$1,701	\$215,287	\$1,432,634
85 Sacks (purchased).....	\$3,100	\$15,650	\$103,466	\$7,409	\$473,342	\$3,174,268
86 Cooperage stock and cloth and paper for sacks.....		\$239	\$24,100	\$240	\$77,206	\$122,978
87 Fuel.....	\$450	\$12,391	\$65,701	\$24,865	\$241,933	\$933,435
88 Rent of power and heat.....	\$360	\$11,086	\$3,895	\$5,159	\$6,203	\$14,814
89 Mill supplies.....	\$192	\$3,040	\$20,041	\$4,162	\$35,973	\$124,864
90 All other materials.....		\$9,517	\$9,775	\$9,673	\$37,664	\$106,522
91 Freight.....		\$7,057	\$12,895	\$3,808	\$108,874	\$553,006
Products:						
92 Aggregate value.....	\$65,762	\$3,932,882	\$7,318,212	\$4,618,313	\$26,512,027	\$122,059,123
Wheat flour—						
93 Total barrels.....		24,917	1,015,952	8,435	3,901,219	23,871,227
94 Total value.....		\$147,905	\$4,860,634	\$46,994	\$17,155,090	\$103,401,447
White—						
95 Barrels.....		24,485	1,015,866	250	3,860,809	23,839,717
96 Value.....		\$145,829	\$4,860,290	\$1,400	\$16,987,310	\$103,254,958
Graham—						
97 Barrels.....		432	86	8,185	40,410	31,510
98 Value.....		\$2,076	\$344	\$45,594	\$167,780	\$146,489
Rye flour—						
99 Barrels.....		658	2,858	2,037	61,842	132,671
100 Value.....		\$3,518	\$14,463	\$9,183	\$219,597	\$543,505
Buckwheat flour—						
101 Pounds.....		1,692,868	1,642,766	108,450	21,930,856	2,247,420
102 Value.....		\$39,933	\$45,109	\$4,555	\$524,429	\$62,513
Barley meal—						
103 Pounds.....		188,470		60,800	205,770	160,000
104 Value.....		\$3,050		\$811	\$2,411	\$3,200
Corn meal and corn flour—						
105 Barrels.....		960,416	298,196	1,383,547	210,116	66,018
106 Value.....		\$2,377,373	\$722,991	\$3,411,109	\$506,615	\$154,243
Hominy and grits—						
107 Pounds.....		2,010,000	3,011,460	750,000	43,802	891,161
108 Value.....		\$29,040	\$41,861	\$13,500	\$1,075	\$13,353
Feed—						
109 Pounds.....	4,676,000	96,718,070	50,771,168	91,040,672	425,150,358	396,434,977
110 Value.....	\$65,762	\$1,251,110	\$649,773	\$1,111,856	\$4,535,938	\$3,721,948
Other—						
111 Pounds.....		5,128,816	91,073,417	385,950	383,659,035	1,867,050,866
112 Value.....		\$60,401	\$947,852	\$4,150	\$3,314,293	\$13,967,200
113 All other products.....		\$20,552	\$35,523	\$16,155	\$252,579	\$191,714
Machinery and capacity:						
114 Pairs of rolls, number.....	2	341	1,456	88	3,823	7,333
115 Runs of stone, number.....	2	199	297	215	406	187
116 Estimated maximum capacity per day of twenty-four hours, barrels.....						
Power:						
117 Number of establishments reporting.....	3	153	201	140	405	363
118 Total horsepower.....	140	6,603	10,663	9,363	35,197	86,517
Owned—						
Engines—						
Steam—						
119 Number.....	2	28	90	42	250	314
120 Horsepower.....	115	950	5,324	2,498	17,928	52,082
Gas or gasoline—						
121 Number.....		36	24	20	39	48
122 Horsepower.....		731	467	536	981	953
Water wheels—						
123 Number.....		135	198	119	396	184
124 Horsepower.....		4,094	4,622	5,949	15,351	32,629
Water motors—						
125 Number.....		1	1	2		
126 Horsepower.....		20	30	7		
Electric motors—						
127 Number.....					10	38
128 Horsepower.....					442	424
Other power—						
129 Number.....			1	1		
130 Horsepower.....			45	22		
Rented—						
Electric motors—						
131 Number.....	1	24	4	12	16	0
132 Horsepower.....	25	748	135	290	450	400
133 Other kind, horsepower.....		60	40	61	45	29
134 Furnished to other establishments, horsepower.....		35		98	47	

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Missouri.	Montana.	Nebraska.	Nevada.	New Hamp- shire.	New Jersey.	New Mexico.	New York.	North Caro- lina.	North Da- kota.	Ohio.	
32,950		13,600		300	33,070		21,933	15,670	10,900	44,159	82
\$12,157		\$4,685		\$175	\$14,509		\$10,086	\$10,406	\$3,225	\$25,792	83
\$200,764	\$6	\$7,149		\$750	\$19,739		\$613,822	\$558	\$2,920	\$237,460	84
\$1,037,951	\$71,546	\$444,991	\$8,431	\$10,286	\$59,646	\$10,661	\$925,730	\$143,920	\$188,651	\$635,710	85
\$239,027		\$5,956		\$20,600	\$3,465		\$42,805	\$180	\$30,577	\$139,118	86
\$451,406	\$11,829	\$183,265	\$1,205	\$4,046	\$24,510	\$7,152	\$305,666	\$93,298	\$124,541	\$374,193	87
\$1,103	\$1,800	\$2,230		\$900	\$2,722	\$1,320	\$41,030	\$3,740		\$5,856	88
\$65,821	\$6,070	\$17,339	\$240	\$2,059	\$6,149	\$880	\$103,443	\$9,372	\$8,768	\$48,979	89
\$51,686		\$68,575	\$285	\$4,659	\$8,454	\$1,205	\$600,524	\$20,249	\$5,085	\$171,805	90
\$188,699	\$59,301	\$18,430		\$3,200	\$27,076	\$243	\$127,498	\$11,196	\$40,292	\$124,955	91
\$38,026,142	\$2,003,136	\$12,190,303	\$520,969	\$2,541,775	\$5,468,613	\$388,124	\$54,546,435	\$6,863,770	\$6,463,228	\$40,855,566	92
6,175,541	297,806	1,739,998	47,456	76,641	354,231	51,068	5,678,743	713,400	1,223,219	5,628,179	93
\$28,512,755	\$1,723,722	\$7,939,735	\$256,978	\$459,148	\$1,912,982	\$268,111	\$28,177,883	\$3,816,448	\$5,513,554	\$27,856,603	94
6,171,011	297,796	1,730,468	47,186	75,380	353,270	51,008	5,637,588	713,379	1,221,416	5,606,455	95
\$28,492,692	\$1,723,672	\$7,897,128	\$255,598	\$451,790	\$1,908,655	\$267,811	\$27,993,291	\$3,816,342	\$5,506,935	\$27,764,108	96
4,530	10	9,530	270	1,261	961	60	41,155	21	1,803	21,721	97
\$20,063	\$50	\$42,607	\$1,380	\$7,358	\$4,327	\$300	\$184,592	\$106	\$6,619	\$92,495	98
1,843	145	51,059		1,806	28,191		332,719	1,972	50	43,691	99
\$8,477	\$616	\$198,749		\$6,363	\$103,871		\$1,424,315	\$9,146	\$300	\$181,105	100
259,760		224,660			3,764,760	300	66,234,663	132,448		3,599,618	101
\$9,113		\$7,276			\$98,643	\$15	\$1,639,873	\$3,072		\$93,967	102
208,000	9,100			275,200	87,600		7,005,960	48,000		5,221,400	103
\$1,920	\$175			\$4,594	\$1,068		\$96,844	\$950		\$82,130	104
935,318	682	542,099		674,192	244,173	4,505	3,004,226	648,481		1,006,703	105
\$2,343,395	\$2,511	\$1,133,437		\$1,590,989	\$634,727	\$15,006	\$6,928,206	\$1,738,154		\$2,432,026	106
58,814,607		8,528,940		500	1,401,200		82,614,004	8,976,400	22,068	69,360,258	107
\$613,653		\$93,824		\$10	\$20,317		\$857,957	\$134,718	\$417	\$699,171	108
187,136,199	2,565,392	164,777,101	15,549,700	32,300,260	186,559,269	3,270,600	803,455,681	33,123,725	22,440,600	406,557,945	109
\$1,776,429	\$31,677	\$1,299,977	\$215,157	\$384,184	\$2,306,637	\$49,179	\$10,354,492	\$400,526	\$189,230	\$4,151,864	110
548,618,750	28,462,309	173,446,964	4,786,438	7,630,000	33,807,248	4,827,900	440,750,271	64,485,439	105,807,004	533,453,493	111
\$4,751,581	\$244,435	\$1,200,205	\$48,659	\$81,228							

TABLE 14.—FLOUR AND GRIST MILL PRODUCTS—DETAILED

	Oklahoma.	Oregon.	Pennsylvania.	Rhode Island.	South Carolina.
1 Number of establishments.....	75	105	1,195	22	29
2 Capital:					
3 Total.....	\$3,242,032	\$3,997,069	\$18,765,691	\$389,479	\$205,619
4 Land.....	\$143,461	\$601,596	\$2,114,559	\$33,900	\$16,682
5 Buildings.....	\$585,730	\$704,098	\$4,249,736	\$101,290	\$46,321
6 Machinery, tools, and implements.....	\$843,657	\$793,286	\$4,243,562	\$80,868	\$92,618
7 Cash and sundries.....	\$1,669,184	\$1,898,089	\$8,157,834	\$173,421	\$49,998
8 Proprietors and firm members.....	56	101	1,558	23	29
9 Salaried officials, clerks, etc.:					
10 Total number.....	153	85	306	15	14
11 Total salaries.....	\$146,043	\$106,666	\$237,394	\$7,450	\$7,494
12 Officers of corporations—					
13 Number.....	54	20	51	2	8
14 Salaries.....	\$60,130	\$36,785	\$55,147	\$600	\$2,160
15 General superintendents, managers, clerks, etc.—					
16 Total number.....	99	65	255	13	11
17 Total salaries.....	\$85,913	\$69,881	\$182,247	\$6,850	\$5,334
18 Men—					
19 Number.....	95	57	188	11	11
20 Salaries.....	\$83,633	\$63,673	\$153,873	\$6,182	\$5,334
21 Women—					
22 Number.....	4	8	67	2	—
23 Salaries.....	\$2,280	\$6,208	\$28,374	\$668	—
24 Wage-earners, including pieceworkers, and total wages:					
25 Greatest number employed at any one time during the year.....	561	584	3,076	48	85
26 Least number employed at any one time during the year.....	360	299	2,572	46	49
27 Average number.....	456	395	2,632	45	60
28 Total wages.....	\$253,256	\$271,183	\$1,246,835	\$23,771	\$18,414
29 Men 16 years and over—					
30 Average number.....	456	395	2,613	44	60
31 Wages.....	\$253,256	\$271,183	\$1,243,120	\$23,621	\$18,414
32 Women 16 years and over—					
33 Average number.....	—	—	6	1	—
34 Wages.....	—	—	\$1,609	\$150	—
35 Children under 16 years—					
36 Average number.....	—	—	13	—	—
37 Wages.....	—	—	\$2,106	—	—
38 Average number of wage-earners, including pieceworkers, employed during each month:					
39 Men 16 years and over—					
40 January.....	466	379	2,602	46	49
41 February.....	467	352	2,581	46	49
42 March.....	457	349	2,599	44	50
43 April.....	444	362	2,571	43	51
44 May.....	416	334	2,531	43	50
45 June.....	406	348	2,491	43	53
46 July.....	447	362	2,514	44	70
47 August.....	469	413	2,545	44	74
48 September.....	483	485	2,680	44	74
49 October.....	486	477	2,754	43	69
50 November.....	469	432	2,743	43	66
51 December.....	462	447	2,745	45	65
52 Women 16 years and over—					
53 January.....	—	—	5	1	—
54 February.....	—	—	6	1	—
55 March.....	—	—	6	1	—
56 April.....	—	—	6	1	—
57 May.....	—	—	6	1	—
58 June.....	—	—	6	1	—
59 July.....	—	—	6	1	—
60 August.....	—	—	6	1	—
61 September.....	—	—	6	1	—
62 October.....	—	—	6	1	—
63 November.....	—	—	6	1	—
64 December.....	—	—	6	1	—
65 Children under 16 years—					
66 January.....	—	—	13	—	—
67 February.....	—	—	13	—	—
68 March.....	—	—	13	—	—
69 April.....	—	—	13	—	—
70 May.....	—	—	13	—	—
71 June.....	—	—	13	—	—
72 July.....	—	—	13	—	—
73 August.....	—	—	13	—	—
74 September.....	—	—	13	—	—
75 October.....	—	—	13	—	—
76 November.....	—	—	13	—	—
77 December.....	—	—	13	—	—
78 Miscellaneous expenses:					
79 Total.....	\$239,532	\$235,836	\$927,480	\$13,357	\$7,708
80 Rent of works.....	\$1,810	\$2,741	\$114,465	\$2,760	\$445
81 Taxes.....	\$21,429	\$27,089	\$75,394	\$1,014	\$1,729
82 Rent of offices, interest, insurance, and all other sundry expenses not hitherto included.....	\$216,293	\$206,006	\$734,584	\$9,583	\$5,534
83 Contract work.....	—	—	\$3,037	—	—
84 Materials used:					
85 Aggregate cost.....	\$8,030,939	\$7,352,430	\$33,204,512	\$1,059,438	\$633,294
86 Wheat—					
87 Bushels.....	7,557,640	8,059,304	19,207,373	1,970	258,438
88 Cost.....	\$6,521,893	\$6,223,471	\$19,455,445	\$1,797	\$279,874
89 Corn—					
90 Bushels.....	2,206,932	27,279	14,658,274	1,590,601	483,062
91 Cost.....	\$885,218	\$17,369	\$8,109,064	\$826,905	\$321,069
92 Rye—					
93 Bushels.....	2,625	8,193	1,458,578	6,800	50
94 Cost.....	\$1,854	\$5,275	\$1,026,846	\$5,032	\$35
95 Buckwheat—					
96 Bushels.....	—	360	1,744,335	—	50
97 Cost.....	—	\$287	\$1,022,238	—	\$50
98 Barley—					
99 Bushels.....	625	1,079,667	181,004	24,050	—
100 Cost.....	\$500	\$531,398	\$80,815	\$10,780	—
101 Oats—					
102 Bushels.....	500	319,760	5,635,097	240,634	3,400
103 Cost.....	\$150	\$125,553	\$2,122,493	\$95,673	\$1,037

¹In order to avoid the disclosure of the operations of individual establishments in certain particulars, 7 establishments in the District of Columbia and 9 in Mississippi are combined under "all other states."

FLOUR AND GRIST MILL PRODUCTS.

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SUMMARY, BY STATES AND TERRITORIES: 1905—Continued.

South Dakota.	Tennessee.	Texas.	Utah.	Vermont.	Virginia.	Washington.	West Vir- ginia.	Wisconsin.	Wyoming.	All other states. ¹	
96	387	154	63	109	365	76	194	389	11	10	1
\$2,427,556	\$6,927,155	\$7,785,339	\$1,212,439	\$1,319,735	\$5,503,101	\$6,490,492	\$2,622,906	\$10,545,861	\$222,440	\$263,353	2
\$116,655	\$485,979	\$386,995	\$139,940	\$187,225	\$554,217	\$558,575	\$236,875	\$1,111,630	\$27,400	\$57,225	3
\$486,805	\$1,104,809	\$1,521,603	\$249,511	\$289,600	\$1,188,133	\$885,211	\$534,505	\$2,148,165	\$43,347	\$69,450	4
\$820,381	\$2,178,041	\$1,991,653	\$421,461	\$199,020	\$1,574,704	\$1,004,060	\$761,555	\$2,663,010	\$66,776	\$45,350	5
\$1,003,715	\$3,158,326	\$3,885,088	\$401,527	\$643,890	\$2,186,047	\$4,042,646	\$1,089,971	\$4,623,056	\$84,917	\$91,328	6
110	584	152	80	139	498	56	301	511	9	21	7
54	250	292	48	14	142	171	79	234	5	13	8
\$57,338	\$212,094	\$346,696	\$27,150	\$10,658	\$104,726	\$211,840	\$65,777	\$252,986	\$5,305	\$12,772	9
25	40	44	17	5	21	37	14	55	-----	2	10
\$26,395	\$57,445	\$94,967	\$5,980	\$6,500	\$18,355	\$67,210	\$11,630	\$72,600	-----	\$6,800	11
39	210	248	31	9	121	134	65	179	-----	11	12
\$30,943	\$154,649	\$251,729	\$21,170	\$4,158	\$86,371	\$144,630	\$54,147	\$180,386	\$5,305	\$5,972	13
32	191	244	30	5	106	126	58	147	6	10	14
\$27,743	\$147,317	\$249,415	\$20,690	\$2,940	\$82,765	\$140,940	\$51,067	\$164,968	\$5,305	\$5,372	15
7	19	4	1	4	15	8	7	32	-----	1	16
\$3,200	\$7,332	\$2,314	\$480	\$1,218	\$3,606	\$3,690	\$3,080	\$15,418	-----	\$900	17
370	1,968	1,219	182	225	1,096	858	488	1,635	25	98	18
315	1,398	855	142	116	892	466	378	1,169	19	84	19
347	1,595	986	150	185	957	613	400	1,351	16	81	20
\$203,102	\$591,046	\$527,652	\$91,461	\$91,464	\$348,681	\$409,828	\$183,050	\$719,682	\$11,258	\$37,042	21
346	1,580	985	148	183	951	607	399	1,344	16	81	22
\$202,502	\$588,756	\$527,502	\$90,916	\$90,554	\$347,831	\$407,399	\$182,790	\$717,790	\$11,258	\$37,042	23
1	1	-----	1	2	-----	4	-----	3	-----	-----	24
\$600	\$300	-----	\$400	\$910	-----	\$2,080	-----	\$1,180	-----	-----	25
-----	14	1	1	-----	6	2	1	4	-----	-----	26
-----	\$1,990	\$150	\$145	-----	\$850	\$349	\$260	\$712	-----	-----	27
355	1,594	1,017	145	192	908	604	396	1,388	18	86	28
348	1,583	1,000	142	189	896	614	386	1,366	18	85	29
336	1,540	908	140	195	916	585	384	1,418	17	84	30
326	1,493	914	138	187	910	569	379	1,275	12	84	31
324	1,522	888	139	180	915	572	384	1,268	12	84	32
324	1,490	888	128	169	921	500	377	1,302	11	86	33
331	1,656	983	136	170	980	523	386	1,286	10	82	34
337	1,666	1,014	152	171	1,000	573	419	1,263	12	80	35
350	1,630	1,029	163	172	1,008	708	431	1,378	19	82	36
373	1,638	1,048	168	182	997	728	423	1,388	20	77	37
375	1,593	1,049	167	195	880	665	420	1,405	23	72	38
373	1,555	1,024	158	194	981	643	403	1,391	20	70	39
1	1	-----	1	3	-----	2	-----	3	-----	-----	40
1	1	-----	1	2	-----	2	-----	3	-----	-----	41
1	1	-----	1	2	-----	4	-----	3	-----	-----	42
1	1	-----	1	2	-----	4	-----	3	-----	-----	43
1	1	-----	1	2	-----	4	-----	3	-----	-----	44
1	1	-----	1	2	-----	4	-----	3	-----	-----	45
1	1	-----	1	2	-----	5	-----	2	-----	-----	46
1	1	-----	1	2	-----	5	-----	2	-----	-----	47
1	1	-----	1	2	-----	6	-----	2	-----	-----	48
1	1	-----	1	2	-----	6	-----	4	-----	-----	49
1	1	-----	1	2	-----	4	-----	4	-----	-----	50
1	1	-----	1	2	-----	2	-----	4	-----	-----	51
-----	14	1	2	-----	4	2	1	4	-----	-----	52
-----	14	1	-----	-----	5	2	1	4	-----	-----	53
-----	14	1	-----	-----	6	2	1	4	-----	-----	54
-----	14	1	-----	-----	6	2	1	4	-----	-----	55
-----	14	1	-----	-----	6	1	1	4	-----	-----	56
-----	14	1	-----	-----	6	1	1	4	-----	-----	57
-----	14	1	-----	-----	8	2	1	4	-----	-----	58
-----	14	1	-----	-----	8	4	1	4	-----	-----	59
-----	14	1	-----	-----	7	2	1	4	-----	-----	60
-----	14	1	3	-----	6	2	1	4	-----	-----	61
-----	14	1	4	-----	5	2	1	4	-----	-----	62
-----	14	1	3	-----	5	2	1	4	-----	-----	63
\$204,249	\$488,700	\$810,098	\$58,147	\$54,155	\$223,190	\$466,378	\$116,063	\$784,055	\$13,240	\$16,489	64
\$6,318	\$5,156	\$3,415	\$3,499	\$5,799	\$17,071	\$20,318	\$3,039	\$25,005	\$500	\$3,100	65
\$17,731	\$37,403	\$43,867	\$9,609	\$7,317	\$23,423	\$40,761	\$15,713	\$72,960	\$1,414	\$1,586	66
\$177,180	\$446,091	\$757,776	\$45,039	\$41,039	\$182,476	\$403,599	\$97,311	\$685,140	\$11,326	\$11,803	67
\$3,020	\$50	\$5,040	-----	-----	\$220	\$1,700	-----	\$950	-----	-----	68
\$5,357,765	\$21,912,157	\$18,962,755	\$2,043,054	\$2,872,445	\$12,170,629	\$12,771,390	\$5,213,205	\$24,756,140	\$219,155	\$662,814	69
5,705,270	15,144,660	15,365,908	2,251,616	15,920	8,586,439	13,887,162	3,039,288	17,896,060	222,478	367,000	70
\$4,715,970	\$15,657,858	\$15,333,789	\$1,892,085	\$15,378	\$8,689,548	\$10,743,311	\$3,197,056	\$16,781,601	\$192,232	\$331,500	71
285,524	9,062,184	4,182,282	35,286	4,118,390	5,086,297	269,901	2,791,879	3,430,171	18,915	543,118	72
\$107,280	\$4,801,171	\$2,177,086	\$21,763	\$2,401,439	\$2,769,322	\$165,285	\$1,549,151	\$1,592,454	\$11,000	\$295,990	73
42,669	7,552	18,733	3,485	105,020	48,499	60,590	3,289,801	200	5,000	74	74
\$22,460	\$4,298	\$5,095	\$11,611	\$2,552	\$62,631	\$36,322	\$40,501	\$2,217,675	\$120	\$3,000	75
926	4,050	-----	-----	12,590	23,182	-----	93,885	588,789	-----	-----	76
\$669	\$2,575	-----	-----	\$6,930	\$12,393	-----	\$56,156	\$373,070	-----	-----	77
256,568	8,225	6,391	76,742	121,024	18,537	1,325,825	3,400	1,767,172	700	-----	78
\$80,335	\$3,971	\$2,896	\$42,176	\$61,383	\$9,192	\$620,334	\$1,704	\$791,486	\$450	-----	79
238,205	10,696	127,000	5,796	888,752	91,726	1,055,264	480,667	6,213,849	400	4,500	80
\$70,717	\$5,680	\$51,900	\$2,536	\$360,070	\$35,172	\$373,917	\$173,016	\$1,869,783	\$160	\$1,804	81

TABLE 14.—FLOUR AND GRIST MILL PRODUCTS—DETAILED

	Oklahoma.	Oregon.	Pennsylvania.	Rhode Island.	South Carolina.
Materials used—Continued.					
Aggregate cost—Continued.					
Other grains—					
82 Bushels.....	2,500	700	29,982	-----	100
83 Cost.....	\$875	\$200	\$15,458	-----	\$100
84 Barrels (purchased).....	\$2,665	-----	\$305,395	\$150	\$10
85 Sacks (purchased).....	\$398,328	\$357,379	\$485,976	\$3,741	\$17,291
86 Cooperage stock and cloth and paper for sacks.....	\$7,000	-----	\$47,159	-----	-----
87 Fuel.....	\$112,769	\$29,631	\$233,217	\$8,715	\$11,025
88 Rent of power and heat.....	\$5,900	\$29,030	\$8,407	\$800	\$1,325
89 Mill supplies.....	\$9,268	\$7,706	\$38,882	\$617	\$799
90 All other materials.....	\$2,690	\$22,296	\$42,117	\$60	\$132
91 Freight.....	\$81,829	\$2,835	\$201,000	\$105,138	\$547
Products:					
92 Aggregate value.....	\$9,436,266	\$8,467,613	\$38,518,702	\$1,134,092	\$725,222
Wheat flour—					
93 Total barrels.....	1,635,257	1,740,849	3,969,229	339	53,150
94 Total value.....	\$7,269,368	\$6,324,932	\$19,844,069	\$2,093	\$292,490
White—					
95 Barrels.....	1,632,967	1,716,833	3,952,446	10	53,100
96 Value.....	\$7,258,828	\$6,236,291	\$19,764,264	\$60	\$292,278
Graham—					
97 Barrels.....	2,290	24,016	16,783	329	50
98 Value.....	\$10,540	\$88,641	\$79,805	\$2,033	\$212
Rye flour—					
99 Barrels.....	458	285	128,506	1,760	-----
100 Value.....	\$2,152	\$1,300	\$536,576	\$5,531	-----
Buckwheat flour—					
101 Pounds.....	-----	11,600	45,117,852	-----	1,600
102 Value.....	-----	\$385	\$1,075,989	-----	\$60
Barley meal—					
103 Pounds.....	-----	2,693,000	331,600	327,000	-----
104 Value.....	-----	\$32,750	\$4,106	\$3,280	-----
Corn meal and corn flour—					
105 Barrels.....	109,545	685	1,097,993	397,917	113,622
106 Value.....	\$260,407	\$3,395	\$2,691,670	\$922,280	\$314,257
Hominy and grits—					
107 Pounds.....	-----	225,651	33,938,974	-----	2,336,100
108 Value.....	-----	\$4,515	\$411,579	-----	\$32,329
Feed—					
109 Pounds.....	101,638,337	64,541,124	826,493,535	18,163,488	2,200,975
110 Value.....	\$920,520	\$813,442	\$9,990,426	\$200,908	\$32,392
Offal—					
111 Pounds.....	128,703,339	132,954,191	371,285,494	-----	5,044,116
112 Value.....	\$982,637	\$1,247,728	\$3,774,327	-----	\$53,134
113 All other products.....	\$1,182	\$39,166	\$189,960	-----	\$660
Machinery and capacity:					
114 Pairs of rolls, number.....	872	941	6,630	18	157
115 Runs of stone, number.....	16	55	1,868	30	42
116 Estimated maximum capacity per day of twenty-four hours, barrels.....	-----	-----	-----	-----	-----
Power:					
117 Number of establishments reporting.....	73	105	1,188	22	29
118 Total horsepower.....	6,768	10,013	61,686	1,310	1,440
Owned—					
Engines—					
119 Steam—					
120 Number.....	66	43	553	11	17
121 Horsepower.....	6,219	2,334	26,865	798	785
Gas or gasoline—					
122 Number.....	22	3	175	1	-----
123 Horsepower.....	283	36	4,880	42	-----
Water wheels—					
124 Number.....	1	94	1,288	10	17
125 Horsepower.....	50	6,355	29,212	430	550
Water motors—					
126 Number.....	-----	-----	-----	-----	-----
127 Horsepower.....	-----	-----	-----	-----	-----
Electric motors—					
128 Number.....	2	2	11	-----	-----
129 Horsepower.....	11	20	148	-----	-----
Other power—					
130 Number.....	-----	-----	-----	1	-----
131 Horsepower.....	-----	-----	-----	40	-----
Rented—					
Electric motors—					
132 Number.....	3	15	19	1	8
133 Horsepower.....	105	1,268	494	30	105
134 Other kind, horsepower.....	100	-----	87	-----	-----
Furnished to other establishments, horsepower.....	-----	1,157	32	-----	-----

FLOUR AND GRIST MILL PRODUCTS.

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SUMMARY, BY STATES AND TERRITORIES: 1905—Continued.

South Dakota.	Tennessee.	Texas.	Utah.	Vermont.	Virginia.	Washington.	West Vir- ginia.	Wisconsin.	Wyoming.	All other states.	
21,739	1,050	21,500		1,200	3,025	132	1,000	29,065			82
\$6,150	\$430	\$9,200		\$600	\$1,817	\$63	\$600	\$17,000			83
\$3,426	\$172,091	\$79,882		\$80	\$79,805		\$25,411	\$256,872			84
\$192,584	\$708,034	\$820,949	\$55,641	\$3,529	\$320,480	\$586,633	\$99,566	\$483,322	\$10,498	\$13,575	85
\$2,773	\$78,887	\$15,968	\$3,000	\$255	\$27,861	\$680	\$11,778	\$7,230		\$9,300	86
\$132,106	\$170,555	\$239,941	\$5,957	\$8,416	\$65,651	\$75,132	\$45,050	\$234,956	\$2,365	\$4,108	87
\$60	\$360	\$6,925	\$5,159	\$1,060	\$11,408	\$49,624		\$4,321		\$580	88
\$9,465	\$26,043	\$29,903	\$2,602	\$3,274	\$12,706	\$16,640	\$6,018	\$27,554	\$330	\$1,335	89
\$5,438	\$12,692	\$4,413	\$275	\$5,686	\$21,472	\$21,665	\$4,108	\$35,808		\$250	90
\$8,302	\$269,512	\$184,808	\$249	\$1,793	\$51,171	\$81,784	\$3,090	\$63,008	\$2,000	\$1,372	91
\$6,519,364	\$25,350,758	\$22,083,136	\$2,425,791	\$3,206,075	\$13,832,299	\$14,663,612	\$6,200,291	\$28,352,237	\$283,653	\$769,288	92
1,148,024	3,186,677	3,228,380	453,804	3,026	1,777,169	3,024,287	626,670	3,744,373	43,758	73,400	93
\$5,383,370	\$17,024,123	\$16,491,820	\$1,963,322	\$14,664	\$8,855,726	\$11,154,330	\$3,390,156	\$17,611,009	\$226,754	\$350,375	94
1,142,805	3,184,847	3,223,390	449,779	2,007	1,776,312	2,978,264	625,866	3,726,363	43,708	73,400	95
\$5,360,128	\$17,015,408	\$16,466,591	\$1,946,384	\$10,240	\$8,851,839	\$10,959,241	\$3,387,142	\$17,531,813	\$226,604	\$350,375	96
5,219	1,830	4,990	4,025	1,019	857	46,023	804	18,010	50		97
\$23,242	\$8,715	\$25,229	\$16,938	\$4,424	\$3,887	\$195,089	\$3,014	\$79,196	\$150		98
2,835	40	540	546	365	2,477	1,115	58	547,097		625	99
\$11,414	\$160	\$2,660	\$2,232	\$1,594	\$6,866	\$4,670	\$234	\$1,990,327		\$2,500	100
26,000	103,000			190,350	564,320		2,213,610	15,980,819			101
\$1,010	\$2,830			\$5,825	\$14,336		\$61,138	\$416,517			102
40,000	139,600		14,000	1,100,000	150,400	7,164,000		3,439,960			103
\$700	\$1,948		\$300	\$14,918	\$2,212	\$87,795		\$38,110			104
23,308	2,052,765	509,375	1,657	909,760	1,218,294	7,625	379,872	95,801		126,544	105
\$49,571	\$4,771,722	\$1,477,014	\$5,316	\$2,109,276	\$2,844,946	\$21,034	\$841,827	\$246,651	74	\$293,981	106
	36,009,400	128,000	11,000	1,041,360	2,613,390	27,680	2,172,000	56,900		95,000	107
	\$421,269	\$1,920	\$270	\$14,041	\$34,388	\$744	\$29,708	\$830		\$1,248	108
33,427,382	63,819,018	122,755,403	6,350,320	80,923,682	46,029,148	92,717,710	105,126,266	487,620,273	1,099,000	3,957,800	109
\$286,438	\$676,234	\$1,371,374	\$75,330	\$1,032,712	\$509,954	\$1,080,480	\$1,281,168	\$4,916,055	\$13,044	\$43,904	110
111,690,399	273,750,114	278,993,077	44,933,448	336,000	160,028,921	218,724,431	58,119,482	370,684,210	4,601,700	7,578,000	111
\$786,371	\$2,442,960	\$2,705,334	\$363,171	\$3,380	\$1,549,814	\$1,933,974	\$588,982	\$3,033,568	\$43,651	\$77,280	112
\$490	\$9,512	\$33,014	\$15,850	\$9,665	\$14,057	\$380,585	\$7,078	\$99,170			113
951	3,263	1,822	535	81	2,155	875	1,161	4,072	86	126	114
21	387	64	29	190	573	31	227	361	3	20	115
											116
971	387	154	63	109	365	76	194	389	11	16	117
6,785	23,501	16,319	3,047	7,178	16,194	8,553	8,339	42,714	591	887	118
66	273	162	11	16	117	38	148	201	3	11	119
5,093	15,442	13,956	570	535	5,089	3,773	6,535	21,418	259	454	120
17	6	19		10	19	3	4	43			121
624	129	287		288	399	28	105	1,953			122
31	239	23	63	198	384	45	87	506	9	4	123
1,060	7,842	1,746	2,209	5,943	10,096	2,419	1,699	18,554	332	380	124
	1		1		1						125
	14		30		10						126
2	5	12		2	3	7		13		1	127
8	10	70		135	112	37		503		3	128
											129
											130
	2	11	7	7	10	20		9		2	131
	14	260	238	197	488	2,256		236		50	132
				80		40		50			133
				10			20	605			134

STARCH

STARCH.

By ROBERT H. MERRIAM.

This article contains a statistical discussion of the starch industry in the United States in 1905, with comparative data for earlier censuses. A discussion of the method of making starch will be found in Part III of the Report on Manufactures of the census of 1900. The term "cornstarch" as used herein refers to the starch made from Indian corn or maize for laundry, edible, or other purposes.

The statistics for the 131 establishments which made a specialty of manufacturing one or more kinds of starch at the census of 1905, and those for similar establishments at the censuses of 1850 to 1900, inclusive, are summarized in Table 1.

Although there was a steady growth in the industry from 1850 to 1900, using the value of products as a basis of comparison, a decrease is shown for 1905. This decline in the industry since 1900 is also indicated by the decreases in capital invested, number of wage-earners, and the wages paid. This general decline is due largely to a falling off in the export trade in American starch, as shown by Table 7. In the number of establishments there was a slight

increase at the census of 1905 over 1900, although at the censuses of 1850 to 1880 there was a larger number of establishments than at 1890, 1900, and 1905.

Of the three states, Indiana, New York, and Ohio, which were the leaders in this industry in 1900, Indiana is the only one which shows an increase in value of products in 1905, the output having more than doubled between the two censuses. In New York the decrease in value of products amounted to 39.7 per cent, and in Ohio it was more than 75 per cent. Michigan shows a large increase in value of products, while there were decreases shown for Maine, Connecticut, Massachusetts, Minnesota, Nebraska, and North Dakota. Although Illinois, Maryland, and New Hampshire had starch factories in 1900 none were reported in 1905, and Texas, which had no starch factories in 1900, reported 1 in 1905.

In 1900 New York was the leading state in this industry, Indiana being second and Ohio third; but at the present census Indiana leads, with New York second and Iowa third.

TABLE 1.—COMPARATIVE SUMMARY, WITH PER CENT OF INCREASE: 1850 TO 1905.

	CENSUS.							PER CENT OF INCREASE.					
	1905 ¹	1900	1890	1880	1870	1860	1850	1900 to 1905	1890 to 1900	1880 to 1890	1870 to 1880	1860 to 1870	1850 to 1860
Number of establishments . . .	131	124	80	139	195	167	146	5.6	55.0	² 42.4	² 28.7	16.8	14.4
Capital	\$7,007,695	\$11,671,567	\$4,929,155	\$5,328,256	\$2,741,675	\$2,051,710	\$692,675	² 40.0	136.8	² 7.5	94.3	33.6	196.2
Salaries of officials, clerks, etc., number	248	406	² 218	(⁴)	(⁴)	(⁴)	(⁴)	² 38.9	86.2	-----	-----	-----	-----
Salaries	\$266,395	\$451,334	² 229,909	(⁴)	(⁴)	(⁴)	(⁴)	² 41.0	96.3	-----	-----	-----	-----
Wage-earners, average num- ber	1,803	2,655	2,903	3,119	2,072	1,073	694	² 32.1	² 8.5	² 6.9	50.5	93.1	54.6
Total wages	\$866,479	\$1,099,696	\$959,108	\$919,197	\$900,719	\$298,526	\$193,224	² 21.2	14.7	4.3	2.1	201.7	54.5
Men 16 years and over . . .	1,535	2,088	2,307	2,710	1,712	1,063	686	² 26.5	² 9.5	² 14.9	58.3	61.1	55.0
Wages	\$799,913	\$986,852	\$840,780	(⁴)	(⁴)	(⁴)	(⁴)	² 18.9	17.4	-----	-----	-----	-----
Women 16 years and over . .	236	535	484	301	317	10	8	² 55.9	10.5	60.8	² 5.0	3,070.0	25.0
Wages	\$58,534	\$107,720	\$105,362	(⁴)	(⁴)	(⁴)	(⁴)	² 45.7	2.2	-----	-----	-----	-----
Children under 16 years . . .	32	32	112	108	43	-----	-----	-----	² 71.4	3.7	151.2	-----	-----
Wages	\$8,032	\$5,124	\$12,966	(⁴)	(⁴)	-----	-----	-----	² 60.5	-----	-----	-----	-----
Miscellaneous expenses . . .	\$572,313	\$700,277	\$1,108,135	(⁶)	(⁶)	(⁶)	(⁶)	² 18.3	² 36.8	-----	-----	-----	-----
Cost of materials used . . .	\$5,260,854	\$5,806,422	\$5,153,677	\$4,911,060	\$3,884,909	\$1,380,000	\$799,459	² 9.4	12.7	4.9	26.4	181.5	72.6
Value of products	\$8,082,904	\$9,232,984	\$8,934,517	\$7,477,742	\$5,994,422	\$2,823,258	\$1,261,468	² 12.5	3.3	19.5	24.7	112.3	123.8

¹ Exclusive of the statistics of 10 establishments, engaged primarily in the manufacture of other products. These establishments manufactured starch to the value of \$4,224,200.

² Decrease.

³ Includes proprietors and firm members with their salaries; number only reported in 1900 and 1905, but not included in this table.

⁴ Not reported separately.

⁵ Not reported.

MANUFACTURES.

Table 2 presents a comparative summary, by states, of the statistics returned for this industry at the censuses of 1900 and 1905.

TABLE 2.—COMPARATIVE SUMMARY, BY STATES: 1905 AND 1900.

STATE.	Census.	Number of establishments.	Capital.	SALARIED OFFICIALS, CLERKS, ETC.		WAGE-EARNERS AND WAGES.		Miscellaneous expenses.	Cost of materials used.	Value of products.
				Number.	Salaries.	Average number.	Wages.			
United States.....	1905 1900	131 124	\$7,007,695 11,671,567	248 406	\$266,395 451,334	1,803 2,655	\$366,479 1,099,696	\$572,313 700,277	\$5,260,854 5,806,422	\$8,082,904 9,232,984
Connecticut ¹	1900	8	377,400	92	57,180	113	40,128	57,366	285,830	591,000
Illinois ²	1900	3	169,210	6	7,400	86	52,600	22,528	345,324	542,190
Indiana.....	1905 1900	4 4	1,186,868 2,872,833	42 7	60,318 7,871	462 210	248,848 89,200	114,607 22,676	1,498,746 549,830	2,048,072 989,639
Iowa.....	1905 1900	3 4	863,992 700,064	30 35	28,220 37,842	316 327	160,284 114,881	46,209 59,192	658,896 623,814	1,063,055 896,831
Maine.....	1905 1900	65 45	630,157 344,349	21 17	7,626 3,475	107 111	47,442 34,824	31,059 9,176	364,443 358,716	523,994 555,576
Massachusetts ¹	1900	5	344,999	21	23,788	65	34,736	28,708	259,652	390,161
Michigan.....	1905 1900	4 4	1,282,126 408,921	29 35	37,684 35,730	125 83	54,702 30,166	15,600 54,056	510,602 161,089	935,508 330,183
Minnesota.....	1905 1900	12 8	246,523 209,274	10 5	1,915 2,780	27 57	17,975 23,287	16,226 10,570	141,486 250,594	221,355 329,566
Missouri ¹	1900	3	24,700	25	33,600	70	19,475	12,020	126,610	230,000
New Hampshire ²	1900	4	8,100	.....	.....	4	1,465	425	14,287	18,500
New York.....	1905 1900	15 15	1,122,315 3,547,305	41 79	41,849 149,169	389 996	168,312 471,662	113,862 303,643	1,063,494 1,704,054	1,561,913 2,589,903
Ohio ¹	1900	5	2,073,209	31	39,815	199	78,159	84,396	572,168	940,511
Wisconsin.....	1905 1900	12 6	155,972 93,250	4 7	1,772 4,020	28 34	15,136 15,267	5,980 9,999	97,401 100,719	154,797 154,030
All other states.....	¹ 1905 ⁴ 1900	16 10	1,519,742 497,953	71 46	77,011 48,664	349 300	153,780 93,846	228,770 25,522	925,786 453,635	1,574,210 674,894

¹ Included in "all other states" in 1905.

² None reported in 1905.

³ Includes establishments distributed as follows: California, 2; Connecticut, 3; Florida, 2; Massachusetts, 1; Missouri, 1; Nebraska, 1; New Jersey, 1; Ohio, 2; Pennsylvania, 2; Texas, 1.

⁴ Includes establishments distributed as follows: California, 2; Florida, 2; Maryland, 1; Nebraska, 2; New Jersey, 1; North Dakota, 1; Pennsylvania, 1.

Table 3 shows, by states, the distribution of the starch factories as reported at the censuses of 1850 to 1905, inclusive.

TABLE 3.—Number of establishments: 1850 to 1905.

STATE.	1905	1900	1890	1880	1870	1860	1850
United States.....	131	124	80	139	195	167	146
California.....	2	2	.....	.....	.....	.....	.....
Connecticut.....	3	8	7	1	.....	.....	.....
Florida.....	2	2	3	1	.....	.....	.....
Illinois.....	4	3	1	2	1	2	.....
Indiana.....	4	4	8	6	3	3	.....
Iowa.....	3	4	4	2	.....	.....	.....
Kansas.....	.....	.....	1	.....	.....	.....	.....
Kentucky.....	.....	.....	.....	.....	.....	1	1
Maine.....	65	45	18	23	10	11	10
Maryland.....	.....	1	.....	.....	.....	.....	.....
Massachusetts.....	1	5	5	2	3	3	7
Michigan.....	4	4	.....	.....	.....	.....	1
Minnesota.....	12	8	6	.....	.....	.....	.....
Missouri.....	1	3	.....	.....	.....	.....	.....
Nebraska.....	1	2	1	.....	.....	.....	.....
New Hampshire.....	.....	4	1	20	66	32	26
New Jersey.....	1	1	.....	.....	.....	1	1
New York.....	15	15	16	60	72	61	22
North Dakota.....	.....	1	.....	.....	.....	.....	.....
Ohio.....	2	5	3	5	.....	4	4
Pennsylvania.....	2	1	1	1	2	4	8
Rhode Island.....	.....	.....	1	1	.....	.....	1
Texas.....	1	.....	.....	.....	.....	.....	.....
Vermont.....	.....	.....	2	13	37	48	62
Wisconsin.....	12	6	2	2	1	.....	.....

In 1850 there were 146 starch factories distributed among 12 states. Of these states, Kentucky, New Hampshire, Rhode Island, and Vermont reported

no factories in 1905; Massachusetts, Missouri, New York, Ohio, and Pennsylvania had fewer in 1905 than in 1850; while Maine and Michigan reported more. In 1905 there were 17 states in which 131 starch factories were operated.

Table 4 shows in detail the quantity and value of starch products reported at the censuses of 1900 and 1905.

TABLE 4.—Quantity and value of products: 1905 and 1900.

PRODUCT.	1905	1900
Aggregate value.....	¹ \$8,082,904	² \$9,232,984
Starch:		
Total number of pounds.....	196,074,530	297,803,139
Total value.....	\$6,751,397	\$8,037,965
Cornstarch—		
Pounds.....	150,520,009	247,051,744
Value.....	\$4,702,309	\$6,133,001
Potato starch—		
Pounds.....	27,709,400	33,941,826
Value.....	\$924,476	\$1,129,129
Cassava and wheat starch—		
Pounds.....	17,845,121	16,809,569
Value.....	\$1,124,612	\$775,835
Cattle food:		
Pounds.....	58,626,677	68,745,819
Value.....	\$508,723	\$258,023
All other products.....	\$822,784	\$936,996

¹ Exclusive of 161,930,496 pounds, valued at \$4,224,200, made in establishments manufacturing starch as a minor product.

² Exclusive of 245,237,000 pounds, valued at \$2,850,888, made in establishments manufacturing starch as a minor product.

The aggregate value of starch manufactured in establishments making it as a principal product in 1905 was \$8,082,904, or 12.5 per cent less than in 1900. The quantity of starch produced in 1905 was 196,074,530 pounds, or 34.2 per cent less than in these establishments in 1900. In 1905, in addition to the 131 factories shown in Table 1, there were, 7 establishments making glucose; 1, soap; 1, flavoring extracts; and 1, washing soda; in all of which starch was manufactured as a minor product. Six of these 10 establishments were located in Illinois, and 1 each in Connecticut, Michigan, Missouri, and New Jersey. Their aggregate production was 161,930,496 pounds of starch, valued at \$4,224,200. Including this output the total production of starch in the United States in 1905 was 358,005,026 pounds, valued at \$10,975,597. In 1900 the output of starch by factories in which the manufacture was secondary amounted to 245,237,000 pounds, valued at \$2,850,888. The total quantity of starch made in the United States in 1900 was, therefore, 543,040,139 pounds, valued at \$10,888,553. The decrease in the total quantity of starch reported at the present census as compared with 1900 amounted to 185,035,113 pounds, or 34.1 per cent, while the value shows an increase of \$86,744, or less than 1 per cent. The decrease in the output is, as heretofore stated, due in a large measure to the decrease in the foreign demand for starch.

The value of the cornstarch made by the 131 factories engaged primarily in the manufacture of starch in 1905 was \$4,702,309, or 58.2 per cent of the value of all products of these establishments; the value of the potato starch was \$924,476, or 12.9 per cent; of cassava and wheat starch, \$1,124,612, or 12.4 per cent; and of cattle food, 508,723, or 6.3 per cent. The value of all other products, which includes gluten feeds, corn oil, soap, etc., was \$822,784, or 10.2 per cent of the total.

The total quantity of starch made from cassava and wheat was only 17,845,121 pounds, or but 8.1 per cent of all starch made by starch factories. Wheat starch was made in California, Connecticut, Massachusetts, Michigan, New York, and Pennsylvania, while cassava or root starch was made only in Florida.

Although there was a decrease of 10,119,142 pounds, or 14.9 per cent, in the quantity of cattle food produced in starch factories, the value increased \$250,700, or 97.2 per cent.

In addition to the 150,520,009 pounds of cornstarch shown in Table 5, 161,930,496 pounds were manufactured by 10 establishments making starch as a minor product. The total output of cornstarch in 1905 was, therefore, 312,450,505 pounds. In addition to the 1900 output of cornstarch shown in Table 5, the establishments making starch as a minor product had an estimated production of cornstarch in that year

of 245,237,000 pounds, valued at \$2,850,888. The 1905 production was, therefore, 179,838,239 pounds less than the total output of this variety of starch in 1900. The value of this starch, however, decreased only \$57,380. At the earlier census, according to the reports, cornstarch was worth about 1½ cents per pound, while in 1905 the value was about 2½ cents, or fully 1 cent more per pound.

Table 5 shows, by states, the quantity and value of cornstarch reported at the censuses of 1900 and 1905.

TABLE 5.—Quantity and value of cornstarch, by states: 1905 and 1900.

STATE.	Census.	Pounds.	Value.
United States.....	1905 1900	150,520,009 247,051,744	\$4,702,309 6,133,001
Connecticut ¹	1900	11,337,368	581,000
Illinois ²	1900	24,470,800	369,390
Indiana.....	1905 1900	68,694,922 43,979,000	1,733,419 892,330
Iowa.....	1905 1900	28,131,080 39,325,047	582,050 818,271
Massachusetts ²	1900	585,960	46,391
Michigan ²	1905	3,420,870	68,417
Missouri ¹	1900	6,700,000	230,000
New York.....	1905 1900	31,815,436 66,170,869	1,336,084 1,915,766
Ohio ¹	1900	34,412,450	783,213
All other states.....	⁴ 1905 ⁵ 1900	18,457,701 20,070,250	982,339 496,640

¹ Included in "all other states" in 1905.

² None reported in 1905.

³ None reported in 1900.

⁴ Includes establishments distributed as follows: Connecticut, 3; Missouri, 1; Nebraska, 1; New Jersey, 1; Ohio, 2.

⁵ Includes establishments distributed as follows: Maryland, 1; Nebraska, 2; New Jersey, 1.

Of the 35 starch factories which reported cornstarch at the census of 1900, only 13 reported at the census of 1905. Of the remaining 22 establishments some have been destroyed by fire, others were idle in 1905, and still others had dropped the manufacture of starch for some other business. The output of cornstarch from these 22 factories in 1900 was approximately 148,465,000 pounds. In 1905 reports were received from 8 starch factories which were not reported in 1900. The quantity of cornstarch produced by these establishments was 61,910,340 pounds. There was a net decrease, therefore, in 1905 of 14 in the number of cornstarch factories, and a net loss in product on this account of 86,554,660 pounds, or nearly 50 per cent of the decrease in the total output.

Increased production over 1900 was reported in 1905 from Indiana only. In this state the increase amounted to 24,715,922 pounds, the increase in value being \$841,089. Large decreases were reported from Connecticut, Iowa, Missouri, New York, and Ohio. No cornstarch was reported by starch factories in Illinois in 1905, although in 1900 this state was a large producer. However, 6 glucose factories located in that state reported in 1905, as a minor product, 113,770,344

pounds of cornstarch, valued at \$2,958,029. From neither Massachusetts nor Maryland was any cornstarch reported at the present census, although both states reported production in 1900. Michigan is the only state from which no cornstarch was reported in 1900 that reported production in 1905.

Table 6 shows, by states, the quantity and value of potato starch reported at the censuses of 1900 and 1905.

TABLE 6.—Quantity and value of potato starch, by states: 1905 and 1900.

STATE.	Census.	Pounds.	Value.
United States.....	1905 1900	27,709,400 33,941,826	\$924,476 1,129,129
Maine.....	1905 1900	15,454,787 15,273,633	523,200 544,760
Minnesota.....	1905 1900	6,627,638 10,882,333	221,355 329,566
New York.....	1905 1900	650,517 265,000	23,379 8,935
Wisconsin.....	1905 1900	4,925,838 5,043,060	154,797 154,036
All other states.....	1905 1900	50,600 2,477,800	1,745 91,838

¹ Includes establishments distributed as follows: Michigan, 1; New Hampshire, 4; North Dakota, 1.

The starch factories making potato starch produced 27,709,400 pounds in 1905, or 14.1 per cent of the total quantity of all starch produced by the 131 establishments making the manufacture of starch a specialty. This output of potato starch was 6,232,426 pounds, or 18.4 per cent, less than that of 1900. Over one-half of all the potato starch manufactured was made in Maine. Of the states in which this kind of starch was made, Maine, New Jersey, and New York were the only ones in which there were increases in 1905 as compared with 1900. The decrease in Minnesota was large, and in New Hampshire and North Dakota no potato starch was made in 1905,

although it was reported from these states at the census of 1900.

Table 7 shows the quantity and value of starch exported from the United States each year from 1895 to 1905 inclusive.

TABLE 7.—Quantity and value of exports: 1895 to 1905.¹

YEAR.	Pounds.	Value.
1905.....	61,450,444	\$1,430,572
1904.....	57,185,739	1,340,282
1903.....	27,759,599	852,943
1902.....	28,183,967	656,705
1901.....	102,800,225	2,005,865
1900.....	124,935,963	2,604,362
1899.....	110,193,776	2,282,843
1898.....	72,806,313	1,371,549
1897.....	79,088,876	1,665,926
1896.....	31,839,435	885,198
1895.....	11,788,990	366,800

¹ "Commerce and Navigation of the United States," Bureau of Statistics, Department of Commerce and Labor.

From 1895 to 1900 inclusive the yearly exportation of starch increased except in 1898, when there was a decrease. Since 1900 there has been a decided decrease, the lowest mark being reached in 1903. In 1904 the quantity of starch exported was more than double that for the preceding year; and while the exportations in 1905 were greater than those in 1904, they were 50.8 per cent less than in 1900. This decrease since 1900 in the quantity of starch exported has been occasioned by the large increase in the manufacture of potato starch in Europe, particularly in Germany and Russia, and a consequent decrease in the foreign demand.

The detailed statistics for the starch industry for 1905 in establishments devoted primarily to its manufacture are presented in Table 8, which gives separate totals for each state in which there are three or more establishments, and groups the statistics for other states so as not to disclose the operations of individual establishments. The 10 factories manufacturing starch as a minor product are not presented in this table.

TABLE 8.—STARCH—DETAILED SUMMARY, BY STATES: 1905.

	United States.	Indiana.	Iowa.	Maine.	Michigan.	Minnesota.	New York.	Wisconsin.	All other states. ¹
Number of establishments.....	131	4	3	65	4	12	15	12	16
Capital:									
Total.....	\$7,007,695	\$1,186,868	\$863,992	\$630,157	\$1,282,126	\$246,523	\$1,122,315	\$155,972	\$1,519,742
Land.....	\$577,640	\$75,000	\$34,975	\$27,440	\$138,820	\$8,550	\$151,880	\$16,950	\$124,025
Buildings.....	\$1,499,512	\$131,030	\$221,500	\$245,560	\$230,916	\$62,700	\$209,340	\$47,350	\$351,116
Machinery, tools, and implements.....	\$2,004,124	\$373,300	\$391,817	\$122,550	\$283,219	\$110,496	\$305,367	\$70,662	\$346,713
Cash and sundries.....	\$2,926,419	\$607,538	\$215,700	\$234,607	\$629,171	\$64,777	\$455,728	\$21,010	\$697,888
Proprietors and firm members.....	111	6		74		3	19	2	7
Salaried officials, clerks, etc.:									
Total number.....	248	42	30	21	59	10	41	4	71
Total salaries.....	\$266,395	\$60,318	\$38,220	\$7,626	\$37,684	\$1,915	\$41,849	\$1,772	\$77,011
Officers of corporations—									
Number.....	88	3	3	6	5	3		1	17
Salaries.....	\$61,077	\$13,758	\$5,500	\$515	\$14,000	\$75		\$300	\$26,929
General superintendents, managers, clerks, etc.—									
Total number.....	210	39	27	15	24	7	41	3	54
Total salaries.....	\$205,318	\$46,560	\$32,720	\$7,111	\$23,684	\$1,840	\$41,849	\$1,472	\$50,082
Men—									
Number.....	173	33	22	14	21	7	30	3	43
Salaries.....	\$186,615	\$42,621	\$30,050	\$6,487	\$22,324	\$1,840	\$36,039	\$1,472	\$45,782
Women—									
Number.....	37	6	5	1	3		11		11
Salaries.....	\$18,703	\$3,939	\$2,670	\$624	\$1,360		\$5,810		\$4,300
Wage-earners, including pieceworkers, and total wages:									
Greatest number employed at any one time during the year.....	3,349	553	346	657	182	147	800	132	532
Least number employed at any one time during the year.....	2,076	403	274	582	105	101	235	96	274
Average number.....	1,803	462	316	107	125	27	389	28	349
Total wages.....	\$866,479	\$245,848	\$160,284	\$47,442	\$54,702	\$17,975	\$168,312	\$15,136	\$153,780
Men 16 years and over—									
Average number.....	1,535	396	289	105	115	27	264	28	311
Wages.....	\$799,913	\$231,216	\$153,240	\$47,079	\$52,302	\$17,975	\$138,912	\$15,136	\$144,053
Women 16 years and over—									
Average number.....	236	62	26	2	10		99		37
Wages.....	\$58,534	\$17,031	\$6,900	\$363	\$2,400		\$22,400		\$9,440
Children under 16 years—									
Average number.....	32	4	1				26		1
Wages.....	\$8,032	\$601	\$144				\$7,000		\$287
Average number of wage-earners, including pieceworkers, employed during each month: ²									
Men 16 years and over—									
January.....	1,216	332	272	4	76		247	2	283
February.....	1,341	353	272	4	135	4	265	2	306
March.....	1,289	352	273	4	132	8	153	2	365
April.....	1,409	413	275	8	129		193	2	389
May.....	1,445	426	280	11	127		212	2	394
June.....	1,444	435	288	4	122		236	3	356
July.....	1,392	405	291	4	66		302	5	319
August.....	1,414	412	297	4	58	9	344	4	286
September.....	2,121	410	300	554	149	78	326	46	258
October.....	2,350	410	302	599	165	132	353	124	265
November.....	1,661	406	307	67	145	93	260	113	270
December.....	1,338	398	311	11	76		277	31	241
Women 16 years and over—									
January.....	172	52	25		15		63		17
February.....	192	60	26		15		73		18
March.....	175	62	25		15		32		41
April.....	253	75	25		15		83		55
May.....	266	75	26		15		86		64
June.....	240	67	28				92		63
July.....	250	55	28				114		53
August.....	263	52	28				146		37
September.....	259	50	26	12			142		29
October.....	293	67	23	12	15		149		27
November.....	251	64	22		15		128		22
December.....	218	65	30		15		90		18
Miscellaneous expenses:									
Total.....	\$572,313	\$114,607	\$46,209	\$31,059	\$15,600	\$16,226	\$113,862	\$5,980	\$228,770
Rent of works.....	\$1,590	\$300	\$180	\$100			\$120		\$890
Taxes, not including internal revenue.....	\$34,451	\$4,476	\$2,600	\$3,824	\$3,370	\$1,355	\$10,656	\$1,543	\$6,627
Rent of offices, interest, insurance, and all other sundry expenses not hitherto included.....	\$536,272	\$109,831	\$43,429	\$27,135	\$12,230	\$14,871	\$103,086	\$4,437	\$221,253
Materials used:									
Total cost.....	\$5,263,854	\$1,498,746	\$658,896	\$364,443	\$510,602	\$141,486	\$1,063,494	\$97,401	\$925,786
Principal materials—									
Total cost.....	\$2,705,649	\$1,116,833	\$410,355	\$331,250	\$59,558	\$130,583	\$346,873	\$88,980	\$222,217
Corn—									
Pounds.....	245,712,685	127,641,976	51,439,696		6,533,624		35,584,640		24,512,749
Cost.....	\$2,142,998	\$1,116,833	\$410,355		\$58,365		\$335,228		\$222,217
Potatoes—									
Pounds.....	209,372,549			105,694,521	490,080	60,167,770	5,272,200	37,747,978	
Cost.....	\$563,651			\$331,250	\$1,193	\$130,583	\$11,645	\$88,980	
Fuel.....	\$256,165	\$83,691	\$30,903	\$15,455	\$29,821	\$9,340	\$43,157	\$5,593	\$38,205
Rent of power and heat.....	\$4,918	\$3,980	\$500	\$275	\$58				\$105
Mill supplies.....	\$35,880	\$14,269	\$3,600	\$1,163	\$1,239	\$513	\$7,774	\$341	\$6,981
All other materials.....	\$2,226,981	\$271,694	\$209,145	\$16,300	\$406,581	\$999	\$665,675	\$963	\$655,624
Freight.....	\$30,261	\$5,279	\$4,393		\$13,345	\$51	\$15	\$1,524	\$2,654
Products:									
Total value.....	\$8,082,904	\$2,048,072	\$1,063,055	\$523,994	\$935,508	\$221,355	\$1,561,913	\$154,797	\$1,574,210
Starch—									
Total number of pounds.....	196,074,530	68,694,922	28,131,080	15,454,787	9,162,054	6,627,638	33,186,913	4,925,858	29,891,278
Total value.....	\$6,761,397	\$1,733,419	\$532,050	\$523,200	\$630,865	\$221,355	\$1,395,511	\$154,797	\$1,510,200
Cornstarch—									
Pounds.....	150,520,009	68,694,922	28,131,080		3,420,870		31,815,436		18,457,701
Value.....	\$4,702,309	\$1,733,419	\$532,050		\$68,417		\$1,336,084		\$982,339
Potato starch—									
Pounds.....	27,709,400			15,454,787	50,600	6,627,638	650,517	4,925,858	
Value.....	\$924,476			\$523,200	\$1,745	\$221,355	\$23,379	\$154,797	
Cassava and wheat starch—									
Pounds.....	17,845,121				5,690,584		720,960		11,433,577
Value.....	\$1,124,612				\$560,703		\$36,048		\$527,861

¹ Includes establishments distributed as follows: California, 2; Connecticut, 3; Florida, 2; Massachusetts, 1; Missouri, 1; Nebraska, 1; New Jersey, 1; Ohio, 2; Pennsylvania, 2; Texas, 1.

² The average number of children under 16 years employed during each month is not included in the table, because of the small number reported.

MANUFACTURES.

TABLE 8.—STARCH—DETAILED SUMMARY, BY STATES: 1905—Continued.

[illegible]

CANNING AND PRESERVING

(389)

CANNING AND PRESERVING, FRUITS AND VEGETABLES, FISH, AND OYSTERS.

By EMMONS K. ELLSWORTH.

In theory, any process applied to raw or prepared materials that gives them new forms, qualities, or properties is considered manufacturing; but the canning and preserving of fruits and vegetables is an industry so closely allied to agriculture, and that of fish and of oysters to fishing, that neither has been classified as manufacturing except in the more recent Census reports. Consequently, although the canning of fruits and vegetables was carried on previous to 1870 and that of fish and oysters previous to 1890, no reliable statistics are available for the former earlier than the census of 1870 or for the latter earlier than the census of 1890.

These industries are so closely related that, during the earlier periods, the canning and preserving of fruits and vegetables, fish, and oysters were often carried on at the same establishment. This is true to some extent even at the present time. For instance, in Baltimore, Md., there are several establishments at which fruits and vegetables are canned during the summer and oysters during the winter. The two branches of the industry are carried on in the same building with the use of the same machinery; hence it is impossible to ascertain the amount of capital invested in each branch or to segregate the labor employed and cost of materials used.

In the preparation of the Census reports, establishments at which the manufacture of two or more products is carried on are given the classification of the product of greatest value. Thus many establishments which can considerable quantities of fruits and vegetables, fish, and oysters are not included in the figures herein presented, their predominating product being such that they are classified under the head of "food preparations," "pickles, preserves, and sauces," or otherwise. Furthermore, a considerable quantity of oysters is shown as a minor product of establishments classified as canning and preserving, fruits and vegetables. For this reason some of the tables which have been prepared for this report show the entire production of canned fruits and vegetables, fish, and oysters without regard to the classification under which they were returned.

In the census returns for 1900, the value of oysters shucked and sold in bulk was included in the value of oysters reported, while at the present census this item was eliminated, and the value of products limited to that of oysters preserved and hermetically sealed in cans. This change has necessitated some readjustment of the statistics returned at the census of 1900 to make them comparable with those for 1905. Eleven establishments at which the entire product was shucked oysters have been omitted, as have also two establishments engaged in packing fish. Eleven establishments variously classified in 1900 have been changed to correspond with their principal product. Five of these have been transferred from the classification "canning and preserving, oysters" and three from "food preparations" to that of "canning and preserving, fruits and vegetables;" and three from "canning and preserving, fruits and vegetables" to "pickles, preserves, and sauces."

Table 1 presents a comparative summary of the combined statistics for the three canning and preserving industries as returned at the censuses of 1890, 1900, and 1905, with the percentages of increase.

TABLE 1.—*Canning and preserving, fruits and vegetables, fish, and oysters—comparative summary, with per cent of increase: 1890 to 1905.*

	CENSUS.			PER CENT OF INCREASE.	
	1905	1900	1890	1900 to 1905	1890 to 1900
Number of establishments	2,703	2,152	1,012	23.9	115.6
Capital	\$70,082,076	\$47,691,534	\$19,609,122	46.9	143.2
Salaried officials, clerks, etc., number	3,624	2,398	1,362	51.1	76.1
Salaries	\$3,236,138	\$1,883,559	\$782,534	71.8	140.7
Wage-earners, average number	50,238	51,879	58,235	3.2	10.9
Total wages	\$14,218,170	\$12,709,310	\$6,422,070	11.9	97.9
Men 16 years and over	22,928	24,233	23,738	5.4	2.1
Wages	\$8,923,793	\$8,128,365	\$3,778,795	9.8	115.1
Women 16 years and over	23,437	23,207	28,257	1.0	17.9
Wages	\$4,817,522	\$4,108,899	\$2,437,987	17.2	68.5
Children under 16 years	3,873	4,439	6,240	12.8	28.9
Wages	\$476,855	\$472,046	\$205,288	1.0	129.9
Miscellaneous expenses	\$8,590,984	\$3,120,789	\$1,650,540	175.3	89.1
Cost of materials used	\$70,058,686	\$51,380,372	\$25,464,739	36.3	101.8
Value of products	\$108,505,471	\$79,679,464	\$40,095,450	36.2	98.7

¹ Includes proprietors and firm members, with their salaries; number only reported in 1900 and 1905, but not included in this table.

² Decrease.

For the industry as a whole there was a great increase at each census as compared with the previous one. The only items which show decreases are the ones relating to the average number of wage-earners. The decrease in the average number of wage-earners is apparent rather than real, and is due to the difference in methods of computation employed at the different censuses. In 1890 the average number was computed only for the actual time the establishment was reported in operation, while in 1900 and 1905 the average number for the entire year was found, thus materially decreasing the average in the case of establishments which were idle for a portion of the year. The decrease in 1905 as compared with 1900 is due to the fact that many of the persons who were employed at fish canning establishments worked under the con-

tract system, being paid by the quantity of fish put up, and therefore were not reported as wage-earners. The wages of such persons were included under miscellaneous expenses, which item shows an increase of 175.3 per cent, by far the largest percentage of increase shown.

The percentage of increase for capital was greater during both periods than for either the number of establishments or the value of products, a fact which indicates a considerable increase in the average capital per establishment, and also in the amount employed to produce a given product.

Table 2 is a summary of the statistics for each of the three branches of the canning and preserving industry for 1905, with the percentages which each formed of the total.

TABLE 2.—CANNING AND PRESERVING, FRUITS AND VEGETABLES, FISH, AND OYSTERS—SUMMARY FOR THE UNITED STATES: 1905.

	Total.	Fruits and vegetables.	Per cent of total.	Fish.	Per cent of total.	Oysters.	Per cent of total.
Number of establishments.....	2,703	2,261	83.6	373	13.8	69	2.6
Capital.....	\$70,082,076	\$47,629,497	68.0	\$19,853,016	28.3	\$2,599,563	3.7
Salaried officials, clerks, etc., number.....	3,624	2,653	73.2	785	21.7	186	5.1
Salaries.....	\$3,236,138	\$2,241,788	69.3	\$873,483	27.0	\$120,867	3.7
Wage-earners, average number.....	50,238	39,988	79.6	6,959	13.9	3,291	6.5
Total wages.....	\$14,218,170	\$10,428,521	73.3	\$3,241,740	22.8	\$547,909	3.9
Men 16 years and over.....	22,928	16,760	73.1	5,262	22.9	906	4.0
Wages.....	\$8,923,793	\$5,902,779	66.1	\$2,738,157	30.7	\$282,857	3.2
Women 16 years and over.....	23,437	20,438	87.2	1,367	5.8	1,632	7.0
Wages.....	\$4,817,522	\$4,176,780	86.7	\$445,228	9.2	\$195,514	4.1
Children under 16 years.....	3,873	2,790	72.0	330	8.5	753	19.5
Wages.....	\$476,855	\$348,962	73.2	\$58,355	12.2	\$69,538	14.6
Miscellaneous expenses.....	\$8,590,984	\$5,275,619	61.4	\$3,082,771	35.9	\$232,594	2.7
Cost of materials used.....	\$70,058,686	\$51,582,460	73.6	\$15,885,354	22.7	\$2,590,872	3.7
Value of products.....	\$108,505,471	\$78,142,022	72.0	\$26,377,210	24.3	\$3,986,239	3.7

The table shows that the canning of fruits and vegetables is far more important in every particular than that of either fish or oysters. The item of the canning and preserving industry of which fruits and vegetables formed the smallest proportion was miscellaneous expenses, and even of that item the per cent was 61.4. The largest proportion which any item for fruits and vegetables formed of the corresponding total for canning and preserving was 87.2 per cent in the case of women wage-earners 16 years of age and over. It also formed 83.6 per cent of the total number of establishments, 68 per cent of the total capital, and 72 per cent of the total value of products.

The canning of fish was next in importance to that of fruits and vegetables in all items, except the number of women and of children wage-earners, and the amount of children's wages. The proportion of the various totals for the three branches of the canning industry treated, which are formed by the corresponding totals for fish, varies from 5.8 per cent, shown in the case of the number of women wage-earners, to 35.9 per cent in the case of miscellaneous expenses. This comparatively large proportion of the total amount of miscellaneous expenses may be attributed to the large amount of contract work employed at fish canning

establishments, which is included under miscellaneous expenses. This branch of the industry formed 13.8 per cent of the number of establishments, 28.3 per cent of the capital invested, and 24.3 per cent of the value of products.

Oyster canning and preserving is the least important of the three branches of the industry, forming but 2.6 per cent of the total number of establishments and 3.7 per cent of the capital and value of products. The largest proportion which any of its totals form of the corresponding totals for the industry as a whole is 19.5 per cent for the number of children under 16 years.

Table 3 shows the imports of canned and preserved fish, fruits, and vegetables for each year from 1901 to 1905, inclusive, and Table 4 shows the exports of these commodities and of oysters for the same period, as presented in the annual reports of the Bureau of Statistics of the Department of Commerce and Labor. Owing to the differences between the classifications used by the Bureau of Statistics and those adopted by the Bureau of the Census, the two tables are not strictly comparable with the others used, but in a general way they present the relation of this industry to our foreign trade in these products.

TABLE 3.—IMPORTS OF FISH, FRUITS, AND VEGETABLES, CANNED OR PRESERVED: 1901 TO 1905.¹

ARTICLE.	1905	1904	1903	1902	1901
Aggregate value.....	\$10,558,859	\$10,693,484	\$9,352,988	\$8,927,947	\$7,503,515
Fish, total value.....	7,304,752	6,921,500	6,103,586	5,927,848	4,852,697
Anchovies and sardines packed in oil or otherwise.....	2,283,358	1,691,540	1,438,506	1,710,774	1,322,252
Cod, haddock, hake, and pollock, dried, smoked, pickled, or salted.....	1,041,938	1,104,098	1,021,212	1,095,336	667,667
Herring:					
Dried or smoked.....	60,301	67,520	68,666	130,941	88,274
Pickled or salted.....	1,555,009	1,575,241	1,734,487	1,313,597	1,163,611
Mackerel, pickled or salted.....	1,445,873	1,672,812	1,118,408	1,003,854	837,790
Salmon, pickled or salted.....	33,665	33,590	30,316	41,822	43,930
All other varieties, cured or preserved.....	904,608	776,699	691,991	631,524	729,173
Fruits, total value.....	1,936,136	2,198,727	2,061,505	1,898,838	1,727,312
Plums and prunes.....	63,617	46,976	63,218	44,077	62,880
Raisins.....	273,031	355,542	476,844	399,973	297,631
Prepared or preserved fruits.....	1,599,488	1,796,209	1,521,443	1,454,788	1,366,801
Vegetables prepared or preserved, total value.....	1,317,971	1,573,257	1,187,897	1,101,261	923,506

¹ "Commerce and Navigation of the United States," Bureau of Statistics, Department of Commerce and Labor, 1905.TABLE 4.—EXPORTS OF FISH, OYSTERS, FRUITS, AND VEGETABLES, CANNED OR PRESERVED: 1901 TO 1905.¹

ARTICLE.	1905	1904	1903	1902	1901
Aggregate value.....	\$15,173,733	\$18,260,716	\$15,833,174	\$11,121,134	\$12,509,034
Fish, total value.....	6,338,458	7,696,813	6,539,528	6,348,190	6,584,005
Dried, smoked, or cured:					
Cod, haddock, hake, and pollock.....	214,056	167,103	148,557	270,440	345,597
Herring.....	53,986	44,336	33,632	57,287	84,239
All other.....	11,688	10,295	23,020	15,707	24,422
Pickled:					
Mackerel.....	17,014	7,848	7,360	15,634	16,858
All other.....	77,361	41,784	74,346	83,602	99,766
Salmon:					
Canned.....	3,035,469	5,224,598	4,350,791	3,991,402	4,230,271
All other, fresh or cured ²	1,832,655	1,163,489	869,352	694,435	426,738
Canned fish other than salmon or shellfish.....	112,510	115,283	105,228	166,053	200,626
Shellfish:					
Oysters.....	633,430	610,762	630,935	743,521	831,152
All other.....	350,289	311,315	296,307	310,109	324,336
Fruits, total value.....	8,255,227	9,844,323	8,695,887	4,212,332	5,396,115
Apples, dried.....	2,208,414	2,791,421	2,378,635	1,190,593	1,510,581
Apricots, dried.....	606,777	608,511	713,887	178,143	(³)
Prunes.....	2,455,056	3,410,497	3,512,507	1,404,422	589,113
Raisins.....	372,087	281,402	284,530	149,216	218,715
Preserved fruits:					
Canned.....	2,541,025	2,637,002	1,739,571	1,195,635	3,006,109
All other.....	71,863	115,490	66,757	94,323	71,597
Vegetables, canned, total value.....	580,048	719,580	597,759	560,612	528,914

¹ "Commerce and Navigation of the United States," Bureau of Statistics, Department of Commerce and Labor, 1905.² Includes small amounts of fresh fish.³ Included in "all other fruits" prior to 1902.

Table 3 shows that there was an increase of \$3,055,344, or 40.7 per cent, in imports of canned or preserved fish, fruits, and vegetables during the five years. From 1901 to 1904 there was a steady increase in the total. In 1905 there was a slight decrease, though the figures are greater than those for 1901, 1902, or 1903. For both fruits and vegetables similar conditions prevailed, each increasing from 1901 to

1904, and showing a small decrease in 1905, but for fish the increase continued throughout the period. According to the statistics there were no imports of oysters.

Table 4 shows a decrease for 1902 as compared with 1901 in the total value of the products of the canning industry exported. After 1902, however, the increase was continuous until 1905. The figures for

the year 1905 show a decrease from those for 1904, in which year the annual exports reached a maximum for the five-year period. In 1904 the value of the canned and preserved fruits exported was \$9,844,323; the value of fish, \$7,696,813; and of vegetables, \$719,580.

A comparison of the two tables shows that in the year 1905 the United States imported canned and preserved fruits to the value of \$1,936,136, while it exported like products to the value of \$8,255,227, or more than four times the amount of imports; and in 1904 the difference was even greater. In 1905 the imports of fish and of vegetables exceeded the exports by \$966,294 and \$737,923, respectively. Therefore the increase of exports over imports for all classes of products was \$4,614,874, or 43.7 per cent.

Table 5 shows the value of fruits and vegetables, and of fish and oysters canned and preserved in the United States in 1905, the imports and exports for the same year, and the percentage that the imports and exports constituted of the value of the corresponding domestic product.

TABLE 5.—*Canning and preserving, fruits and vegetables, fish, and oysters—value of products, imports, and exports, and per cent of imports and exports to products: 1905.*

Fruits and vegetables:	
Value of products.....	\$78,142,022
Value of imports.....	\$3,254,107
Per cent of imports to products.....	4.2
Value of exports.....	\$8,835,275
Per cent of exports to products.....	11.3
Fish and oysters:	
Value of products.....	\$30,363,449
Value of imports.....	\$7,304,752
Per cent of imports to products.....	24.1
Value of exports.....	\$6,338,458
Per cent of exports to products.....	20.9

In 1905 the value of imported canned and preserved fruits and vegetables was equal to but 4.2 per cent of the value of the corresponding domestic product, while the value of the products exported formed 11.3 per cent. The imports of canned and preserved fish and oysters were equal to 24.1 per cent and the exports were 20.9 per cent of the value of those produced in this country. As these figures indicate, a comparatively small part of these varieties of canned goods are exported, the greater portion of them being used for home consumption.

Table 6 presents a comparative summary of the statistics of the canning and preserving industry, by states and territories, for 1900 and 1905, together with a classification of the value of products. In this table the total value of each product is shown without regard to the classification under which it was reported. As an example, for the state of Maryland, oysters to the value of \$384,226 were reported on the schedules for canning and preserving fruits and vegetables, and are shown in the report for fruits and vegetables as "all other products." In this table they are not included in the value of "all other products" but are included in the value of oysters. The table, however, does not include canned and preserved fruits and vegetables valued at \$715,920, fish at \$274,403, and oysters at \$12,900 put up by establishments classified under the heads of "pickles, preserves, and sauces," "food preparations," etc., which must be taken into consideration to determine the total amount of these goods canned and preserved during the year.

MANUFACTURES.

TABLE 6.—CANNING AND PRESERVING, FRUITS AND VEGETABLES, FISH, AND OYSTERS—

STATE OR TERRITORY.	Census.	Number of establishments.	Capital.	SALARIED OFFICIALS, CLERKS, ETC.		WAGE-EARNERS AND WAGES.							
				Number.	Salaries.	Total.		Men 16 years and over.		Women 16 years and over.		Children under 16 years.	
						Average number.	Wages.	Average number.	Wages.	Average number.	Wages.	Average number.	Wages.
United States.....	1905 1900	2,703 2,182	\$70,082,076 47,691,534	3,624 2,398	\$3,236,138 1,883,559	50,238 51,879	\$14,218,170 12,709,310	22,928 24,233	\$8,923,793 8,128,365	23,437 23,207	\$4,817,522 4,108,899	3,873 4,439	\$476,855 472,046
Alaska.....	1905 1900	63 36	10,275,736 3,203,228	175 64	291,951 106,430	1,805 2,092	950,081 1,242,642	1,766 2,091	942,312 1,242,237	27 1	6,548 405	12 -----	1,221
Arkansas.....	1905 1900	67 34	124,106 33,038	8 2	1,558 350	194 136	38,497 21,942	68 50	19,148 10,079	109 72	17,408 10,495	17 14	1,941 1,368
California.....	1905 1900	184 158	10,252,556 5,169,720	530 304	715,804 301,763	7,378 8,017	2,645,229 2,186,407	2,678 2,155	1,325,457 857,660	4,431 5,421	1,272,474 1,274,501	269 441	47,298 54,246
Colorado.....	1905 1900	7 7	302,650 277,325	14 18	13,480 23,700	212 206	79,252 62,561	120 66	58,561 37,855	76 116	17,862 19,456	16 24	2,829 5,250
Connecticut.....	1905 1900	5 5	88,600 91,463	5 7	2,800 3,260	71 100	15,219 24,967	28 35	8,354 12,203	42 64	6,765 12,614	1 1	100 150
Delaware.....	1905 1900	60 55	1,006,628 970,137	37 29	18,037 14,278	1,000 1,472	186,823 234,149	385 545	87,786 118,751	511 767	87,035 103,119	104 160	12,002 12,279
Florida.....	1905 1900	8 8	88,452 87,450	19 8	7,996 7,001	177 152	24,671 32,797	35 46	10,579 13,257	104 81	11,028 16,375	38 25	3,064 3,165
Georgia.....	1905 1900	9 9	113,905 53,017	18 7	10,745 5,310	579 323	55,056 28,145	68 168	22,610 18,330	268 100	18,407 7,860	243 55	14,039 1,955
Illinois.....	1905 1900	66 64	1,707,125 1,254,632	77 74	71,777 53,710	1,145 1,273	386,458 327,483	749 738	301,301 236,923	359 488	77,787 84,732	37 47	7,370 5,828
Indiana.....	1905 1900	96 60	3,360,030 1,205,494	197 155	129,748 112,174	3,102 2,002	757,187 386,457	1,438 824	473,752 219,239	1,489 1,068	258,793 156,473	175 110	24,702 10,745
Iowa.....	1905 1900	40 27	1,985,493 1,031,696	82 48	68,585 28,265	1,163 701	292,512 185,490	667 323	204,929 115,410	388 266	74,920 54,575	108 112	12,663 15,505
Kansas.....	1905 1900	4 5	131,230 30,300	11 11	3,735 3,254	100 116	22,050 17,148	42 51	15,199 10,124	34 51	4,870 5,564	24 14	1,981 1,460
Kentucky.....	1905 1900	9 8	188,982 95,600	18 12	11,540 5,840	316 231	40,461 36,903	116 89	17,272 19,248	173 105	21,204 14,094	27 37	1,985 3,561
Louisiana.....	1905 1900	10 9	728,340 250,939	72 17	43,058 16,040	433 333	104,487 78,625	120 126	43,853 54,615	244 168	49,127 22,260	69 39	11,507 1,750
Maine.....	1905 1900	229 176	3,382,431 9,346,881	331 279	237,219 190,351	3,415 6,471	1,288,806 1,388,359	1,882 3,382	853,873 977,665	1,213 2,062	381,231 294,687	320 1,027	53,702 116,007
Maryland.....	1905 1900	390 279	6,993,188 5,247,930	400 281	307,252 276,568	9,067 9,149	1,762,657 1,750,079	3,247 3,693	834,487 966,390	4,703 4,470	796,024 685,910	1,117 986	132,146 97,779
Massachusetts.....	1905 1900	55 70	2,073,971 1,782,602	158 131	136,882 110,731	1,115 1,467	474,279 515,068	859 1,251	410,493 471,441	255 213	63,656 43,102	1 3	130 525
Michigan.....	1905 1900	118 101	1,326,290 504,612	114 51	70,356 25,491	1,358 816	329,092 178,013	508 302	181,192 99,598	802 463	141,939 72,554	48 51	5,961 5,861
Minnesota.....	1905 1900	17 4	258,820 43,650	28 2	13,280 1,600	149 45	40,402 8,523	61 17	22,818 6,670	59 26	13,320 1,590	29 2	4,264 263
Mississippi.....	1905 1900	11 8	980,374 328,129	57 16	30,718 16,900	757 650	171,840 122,982	246 184	86,017 67,607	349 317	63,690 40,225	162 149	22,133 15,150
Missouri.....	1905 1900	62 45	411,886 323,600	83 72	15,357 19,367	530 638	80,590 115,592	162 168	37,463 51,048	272 368	34,937 54,883	96 102	8,190 9,661
Nebraska.....	1905 1900	8 5	356,657 123,623	20 9	11,184 6,400	292 161	62,065 21,686	157 81	38,672 13,200	00 50	18,818 6,000	45 30	4,575 2,486
New Hampshire.....	1905 1900	4 4	25,738 22,362	1 1	600 600	15 19	3,929 5,957	6 11	2,360 4,700	7 8	1,351 1,257	2 -----	218
New Jersey.....	1905 1900	61 74	1,811,492 1,436,721	48 63	35,478 33,830	1,572 2,000	355,432 425,592	689 826	209,672 235,816	847 1,088	141,410 180,952	36 86	4,350 8,824
New York.....	1905 1900	565 520	10,410,610 6,749,623	460 268	476,299 207,545	6,788 5,584	2,002,351 1,483,662	3,206 2,331	1,251,833 829,988	3,421 3,034	728,618 625,586	161 219	21,900 28,088
North Carolina.....	1905 1900	23 21	126,007 48,840	16 2	4,795 300	199 323	29,959 41,581	97 177	19,456 26,651	83 121	8,995 12,505	19 25	1,508 2,425
Ohio.....	1905 1900	77 72	1,768,001 911,995	117 103	75,327 58,975	1,577 1,608	400,061 305,393	864 581	280,179 158,919	661 841	114,183 123,826	55 186	5,699 22,648
Oregon.....	1905 1900	47 41	1,875,452 2,679,997	100 67	98,827 66,475	523 765	247,177 237,814	365 652	212,876 226,745	136 71	31,001 7,569	22 42	3,300 3,500
Pennsylvania.....	1905 1900	53 40	849,664 520,281	47 35	21,182 25,309	498 468	147,399 123,179	203 211	92,522 81,345	228 206	48,289 35,833	67 51	6,588 6,001
South Carolina.....	1905 1900	14 14	202,319 35,626	20 7	13,540 1,380	1,044 126	111,778 13,134	199 33	39,256 6,054	601 67	50,637 5,080	244 26	21,985 2,000

Value of each product is value of total amount manufactured at the three classes of establishments, without regard to particular class by which reported.

CANNING AND PRESERVING.

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COMPARATIVE SUMMARY, BY STATES AND TERRITORIES: 1905 AND 1900.

Miscellaneous expenses.	Cost of materials used.	VALUE OF PRODUCTS. ¹									
		Total.	Canned vegetables.	Canned fruits.	Dried fruits.	Canned fish.	Smoked fish.	Salted fish.	Oysters.	All other products.	
\$8,590,984 3,120,789	\$70,058,686 51,380,372	\$108,505,471 79,679,464	\$45,262,148 28,734,598	\$11,644,042 11,311,062	\$15,664,784 4,767,005	\$16,983,779 14,051,559	\$2,362,740 957,741	\$6,200,556 5,193,627	\$3,799,412 2,054,800	\$6,588,010 12,619,072	1 2
1,826,590 150,854	3,546,208 1,587,883	7,735,782 3,821,136				7,618,579 3,607,838		114,529 212,398		2,674 900	3 4
7,243 952	104,310 50,954	180,293 100,503	36,998 15,000	8,262	129,094 80,861					5,939 4,642	5 6
1,535,615 440,108	18,005,942 9,810,492	24,826,128 14,290,261	2,366,661 2,274,037	6,978,083 7,340,059	13,800,601 2,911,520	229,163 339,718	71,088 9,000	483,610 445,969	222,617	674,305 969,958	7 8
26,210 14,598	251,699 223,454	474,436 343,394	393,361 247,083	25,875 3,750						55,200 92,561	9 10
1,194 1,985	28,245 81,887	59,457 124,280	51,670 101,048	7,387 22,217						400 1,015	11 12
66,784 29,263	1,035,550 1,109,932	1,463,685 1,614,263	1,406,102 1,414,308	36,731 128,093			7,500 6,833	1,640		13,352 63,389	13 14
5,145 5,909	79,952 51,448	136,092 107,624		165				2,000	125,600 95,793	8,492 9,150	15 16
8,213 4,364	159,637 107,253	270,377 187,134	915 7,522	12,712 111,875					256,750 66,192		17 18
190,822 128,089	1,907,719 1,399,989	3,133,926 2,310,550	2,946,788 1,774,913	15,115 23,775	67,443 144,250		22,060 6,900	2,000		82,520 358,712	19 20
565,789 165,755	3,097,161 1,526,088	5,086,896 2,589,908	4,422,958 2,169,003	28,066 21,397	5,680					635,872 393,828	21 22
154,744 63,518	1,594,396 776,751	2,779,804 1,372,958	2,772,340 1,322,622	100 7,060	1,125				13,000	7,364 29,151	23 24
10,582 11,722	50,881 68,465	89,750 113,675	88,975 110,825	225 2,850						550	25 26
9,405 10,100	185,074 75,346	288,516 192,787	234,105 180,187	2,912 7,200	5,400					51,499	27 28
96,553 9,531	521,749 176,788	922,777 309,837	2,568	625		345,708 91,236		16,910	507,373 71,625	66,503 130,066	29 30
431,339 140,978	4,085,076 3,340,738	7,072,422 6,115,404	1,714,414 1,098,936	121,173 30,479		4,309,124 4,101,983	254,155 150,310	394,284 293,577		279,272 440,119	31 32
652,446 437,917	9,071,302 10,424,687	12,705,511 14,241,763	9,556,611 6,260,691	1,765,824 1,422,968		38,699 92,100		18,800	548,646 923,567	776,931 5,542,437	33 34
194,501 125,450	3,548,210 3,855,712	4,764,248 5,150,907	83,575 57,504	45,204 755		76,342 250,578	364,512 328,540	3,988,331 3,807,908		206,284 705,622	35 36
180,070 30,940	1,123,954 587,138	1,842,131 949,374	872,145 198,755	501,098 278,532	179,680 243,285		89,500 64,877			199,708 163,925	37 38
14,655 1,452	160,004 17,929	275,260 49,200	251,985 49,200	990			6,400	14,875		1,010	39 40
95,447 26,515	1,031,817 617,931	1,505,856 906,939	3,347	12		134,515 140,398			1,340,942 639,603	27,040 126,938	41 42
21,844 27,418	353,368 468,066	508,913 744,656	485,375 535,307	5,964 27,827	900 4,800					16,674 176,722	43 44
26,228 10,325	308,966 130,573	559,489 210,688	541,710 193,286	14,779 13,900	100					3,000 3,402	45 46
3,461 370	10,493 21,581	20,947 31,434	16,418 18,603	3,629 6,660	800 3,725			1,470		100 976	47 48
161,222 83,593	1,492,453 1,416,571	2,290,169 2,224,176	1,923,883 1,858,489	194,543 107,013			52,404 17,580	7,420		119,339 233,674	49 50
1,031,725 507,219	7,739,492 5,726,673	12,910,755 9,173,190	6,836,451 4,410,251	1,207,760 1,347,390	1,346,040 1,275,109	37,959	777,859 101,082	80,657 51,285	7,700	2,616,329 1,988,073	51 52
22,667 1,565	153,342 133,129	221,514 198,600	25,168 49,709	18,993 10,881					144,273 108,250	33,080 29,760	53 54
163,735 73,791	1,725,473 1,197,675	2,840,359 1,942,438	2,718,931 1,769,432	49,964 74,253	300 13,215		500	540		71,164 84,498	55 56
209,709 152,401	1,921,970 1,261,508	2,932,809 1,930,307	30,045 14,300	214,363 106,550	31,000 19,461	1,694,762 1,655,329	8,100 10,000	689,484 39,009	16,000 21,735	249,055 63,923	57 58
37,753 58,873	630,850 500,083	962,088 802,150	788,321 516,468	41,576 39,721	6,576 28,104		88,550 900	15,625		21,440 216,957	59 60
20,045 1,048	349,359 26,190	574,479 50,665	4,284 8,785	1,796 2,930		500			529,511 18,500	38,388 20,450	61 62

MANUFACTURES.

TABLE 6.—CANNING AND PRESERVING, FRUITS AND VEGETABLES, FISH, AND OYSTERS—

STATE OR TERRITORY.	Census	Num- ber of estab- lish- ments.	Capital.	SALARIED OFFI- CIALS, CLERKS, ETC.		WAGE-EARNERS AND WAGES.							
				Num- ber.	Salaries.	Total.		Men 16 years and over.		Women 16 years and over.		Children under 16 years.	
						Aver- age num- ber.	Wages.	Aver- age num- ber.	Wages.	Aver- age num- ber.	Wages.	Aver- age num- ber.	Wages.
63 Tennessee.....	1905	15	\$89,525	12	\$10,342	203	\$30,489	67	\$18,197	112	\$10,526	24	\$1,766
64	1900	11	35,824	16	2,043	116	15,216	24	4,992	56	6,539	36	3,685
65 Texas.....	1905	14	72,590	8	4,101	89	11,526	20	4,921	44	4,719	25	1,886
66	1900	11	63,852	6	4,030	125	29,188	28	10,637	66	15,232	31	3,319
67 Utah.....	1905	18	927,862	36	24,735	369	99,390	142	48,739	171	39,804	56	10,847
68	1900	8	304,258	20	8,068	141	37,565	62	26,037	73	10,172	6	1,356
69 Vermont.....	1905	4	84,763	7	4,400	52	15,108	26	10,874	23	3,884	3	350
70	1900	3	68,528	4	4,100	111	21,762	64	15,140	45	6,362	2	260
71 Virginia.....	1905	164	554,979	37	10,816	888	152,287	268	70,295	519	73,400	101	8,592
72	1900	94	234,358	31	4,027	684	87,121	236	41,910	318	34,902	130	10,309
73 Washington.....	1905	52	2,150,884	93	97,734	645	357,683	540	324,442	91	30,705	14	2,536
74	1900	57	2,311,153	122	98,767	2,258	735,768	2,123	710,869	99	19,925	36	4,974
75 West Virginia.....	1905	14	28,204	2	145	71	7,541	16	2,966	55	4,575	14	1,030
76	1900	9	95,260	4	1,475	128	13,108	55	7,858	59	4,220	14	1,030
77 Wisconsin.....	1905	47	2,782,511	159	140,125	1,226	404,707	769	320,114	384	74,850	73	9,743
78	1900	22	654,705	42	32,732	679	118,100	305	80,880	271	30,235	103	6,985
79 All other states.....	¹ 1905	13	184,025	7	5,630	121	33,639	49	18,963	56	12,892	16	1,784
80	² 1900	8	63,085	10	5,120	193	49,152	129	40,274	47	7,230	17	1,648

¹ Includes establishments distributed as follows: Alabama, 6; Idaho, 3; New Mexico, 1; Oklahoma, 1; Rhode Island, 1; South Dakota, 1.² Includes establishments distributed as follows: Alabama, 4; Idaho, 2; New Mexico, 1; Rhode Island, 1.

CANNING AND PRESERVING.

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COMPARATIVE SUMMARY, BY STATES AND TERRITORIES: 1905 AND 1900—Continued.

Miscellaneous expenses.	Cost of materials used.	VALUE OF PRODUCTS.								
		Total.	Canned vegetables.	Canned fruits.	Dried fruits.	Canned fish.	Smoked fish.	Salted fish.	Oysters.	All other products.
\$7,912 207	\$150,656 37,598	\$240,296 72,007	\$165,157 51,216	\$21,326 19,250	\$650					\$53,813 891
5,330 1,435	46,661 93,350	84,933 164,654	19,705 57,713	63,242 74,241		\$13,550				1,986 19,150
41,267 6,024	506,176 211,279	801,958 300,349	659,509 271,488	91,686 23,281	400					50,363 5,580
14,759 3,390	59,763 83,361	112,711 166,184	111,111 164,584	1,600						1,600
29,976 8,260	698,377 372,328	1,013,702 588,400	879,905 499,355	22,305 30,752	3,435	58,753		\$32,750 19,700		19,989 35,158
442,683 289,279	2,237,290 3,149,707	3,420,913 4,960,159	1,472	105,717	66,100 14,645	2,434,605 3,756,669	\$565,746 225,992	172,018 293,801	\$16,535	75,255 652,517
1,462 2,983	49,381 39,328	75,357 66,886	57,662 36,355	17,695 18,339						12,192
260,400 92,892	1,928,513 571,638	3,106,451 1,043,557	2,732,967 973,954			4,855	54,866 35,227	193,593		120,170 34,376
15,459 2,716	107,217 47,869	214,281 117,067	58,556 21,153	18,310 5,299	35,850 1,640	215 2,160			100,000 80,000	1,350 6,815

Of the total value of products of the canning and preserving industry for the United States, amounting to \$108,505,471 in 1905, the largest item was canned vegetables, the value of which was \$45,262,148, or 41.7 per cent of the total. Canned and dried fruits were next, with a value of \$27,308,826. The value of fish amounted to \$25,547,075, of which canned fish amounted to \$16,983,779, smoked fish to \$2,362,740, and salted fish to \$6,200,556. The value of oysters canned was \$3,799,412. Under the head of "all other products" are included such products as are not properly classed under any of the other heads and which amounted to \$6,588,010 in 1905. All items for 1905 show a substantial increase over 1900 excepting "all other products," which shows a decrease. Canned vegetables exhibit the greatest actual increase, from \$28,734,598 in 1900 to \$45,262,148 in 1905, a gain of \$16,527,550. Canned fruits made a slight gain, while dried fruits increased from \$4,757,005 to \$15,664,784, or more than three times the amount reported in 1900.

In connection with these figures a difference in the method of collecting the statistics for dried fruits in 1905 and 1900 must be noted. In 1905 the value of dried fruits for California amounted to \$13,800,601, or over 88 per cent of the total for the country. In this state practically all fruits dried or evaporated on fruit farms are rehandled by packing houses operated independently of such farms, in some instances being sub-

jected to a further process of preservation before being packed for market. In 1900 all fruits preserved on farms were classed as agricultural products and, to avoid duplication, these were not included in the report for manufactures. In 1905 there was no agricultural census, and the Bureau of the Census decided that a complete report of the production of dried fruit could best be secured by applying to the packing and shipping houses direct, instead of trying to secure the information from all the small establishments. In pursuing this method, a class of fruit which in 1900 was included under agriculture, was in 1905 classed as a product of manufacture, and so the figures indicate a greater increase than has actually occurred, and are not strictly comparable with those for 1900.

The value of canned fish increased from \$14,051,559 to \$16,983,779; smoked fish, from \$957,741 to \$2,362,740; and salted fish, from \$5,193,627 to \$6,200,556. The value of oysters canned shows an increase of over 84 per cent, a value of \$3,799,412 being reported in 1905 as compared with \$2,054,800 in 1900. The leading state in total value of products in 1905 for all classes was California, for which \$24,826,128 was reported. New York was second with \$12,910,755, and Maryland third with \$12,705,511. California held first rank also in 1900 with products valued at \$14,290,261. Maryland was second with \$14,241,763, and New York third with \$9,173,190.

CANNING AND PRESERVING, FRUITS AND VEGETABLES.

In Table 7 the statistics for the establishments engaged in canning and preserving fruits and vegetables are presented with comparisons by census periods from 1870 to 1905 showing the percentages of increase for each period.

TABLE 7.—CANNING AND PRESERVING, FRUITS AND VEGETABLES—COMPARATIVE SUMMARY, WITH PER CENT OF INCREASE: 1870 TO 1905.

	CENSUS.					PER CENT OF INCREASE.			
	1905 ¹	1900	1890	1880	1870	1900 to 1905	1890 to 1900	1880 to 1890	1870 to 1880
Number of establishments.....	2,261	1,813	886	411	97	24.7	104.6	115.6	323.7
Capital.....	\$47,629,497	\$27,795,621	\$15,315,185	\$3,247,488	\$2,335,925	71.4	81.5	85.7	253.1
Salaried officials, clerks, etc., number.....	2,653	1,747	2,119	(³)	(³)	51.9	56.1	.....	.....
Salaries.....	\$2,241,788	\$1,271,508	\$592,390	(³)	(³)	76.3	114.6	.....	.....
Wage-earners, average number.....	39,988	37,189	49,762	31,905	5,869	7.5	25.3	56.0	443.6
Total wages.....	\$10,428,521	\$8,251,471	\$4,651,317	\$2,679,960	\$771,643	26.4	77.4	73.6	247.3
Men 16 years and over.....	16,760	13,914	18,469	10,638	1,658	20.5	24.7	73.6	541.6
Wages.....	\$5,902,779	\$4,245,168	\$2,488,328	(³)	(³)	39.0	70.6	.....	.....
Women 16 years and over.....	20,438	20,169	25,714	15,463	3,434	1.3	21.6	66.3	350.3
Wages.....	\$4,176,780	\$3,677,253	\$2,000,848	(³)	(³)	13.6	83.8	.....	.....
Children under 16 years.....	2,790	3,106	5,579	5,804	777	410.2	444.3	3.9	647.0
Wages.....	\$348,962	\$329,050	\$162,141	(³)	(³)	6.1	102.9	.....	.....
Miscellaneous expenses.....	\$5,275,619	\$2,216,495	\$1,289,681	(³)	(³)	138.0	71.9	.....	.....
Cost of materials used.....	\$51,582,460	\$37,382,541	\$18,665,163	\$12,051,293	\$3,094,846	38.0	100.3	54.9	289.4
Value of products.....	\$78,142,022	\$56,427,412	\$29,862,416	\$17,599,576	\$5,425,677	38.5	89.0	69.7	224.4
Fruits and vegetables.....	\$72,570,974	\$44,802,665	(³)	(³)	(³)	62.0	.....	.....	.....
Other products.....	\$5,571,048	\$11,624,747	(³)	(³)	(³)	52.1	.....	.....	.....

¹ Exclusive of the statistics of 43 establishments engaged primarily in the manufacture of other products. These establishments packed fruits and vegetables to the value of \$715,920.

² Includes proprietors and firm members, with their salaries; number only reported in 1900 and 1905, but not included in this table.

³ Not reported separately.

⁴ Decrease.

⁵ Not reported.

At the census of 1870, the first which included the statistics of canning and preserving fruits and vegetables, the number of establishments was 97 and the value of products \$5,425,677. In 1880 the number of establishments reported was 411, an increase over 1870 of 323.7 per cent, and the value of products \$17,599,576, an increase of 224.4 per cent. In 1890 the number of establishments had increased to 886 and the value of products to \$29,862,416. While the greatest percentages of increase in number of establishments and value of products between any consecutive census years were from 1870 to 1880, the greatest absolute increase in these items was from 1890 to 1900. During this time the number of establishments increased 927, and the increase in value of products amounted to \$26,564,996. The number of wage-earners in 1900 as compared with 1890 showed a decrease of 12,573. As previously stated this decrease is due to the difference in the methods employed at the two censuses in computing the average number of wage-earners.

During the five years from 1900 to 1905 there has been a considerable increase in every item except number of children wage-earners, which decreased 10.2 per cent. While the increase in value of products is not so large as that reported during the decade from 1890 to 1900, it represents the growth of the industry during but five years and is, therefore, proportionately much greater, indicating a more rapid development of the canning industry during the past five years than during any similar period since its foundation in this country.

The size of the fruit and vegetable canning establishments in 1905 varied greatly, ranging, when measured by value of products, from \$500 to more than \$1,500,000. By using the number of establishments as a divisor and the various items as dividends, we find that the average cannery had a capital of \$21,066, gave employment to an average of 18 people whose pay amounted to \$4,612, and produced canned goods to the value of \$34,561. In 1900 the average establishment showed a capital of \$15,331, a force of 21 employees receiving \$4,551 in wages and salaries, and a product of \$31,124. This shows that the average establishment in 1905 had increased its capital \$5,735, and its value of products \$3,437 since 1900. While the number of wage-earners in an average establishment was 3 less in 1905 than in 1900, the amount paid them was \$61 greater, showing that there has been an

increase in the wages paid in this industry during the past five years.

Although some establishments, at which fruits and vegetables are packed during the summer and oysters during the winter, are running the greater part of the year, the strict fruit and vegetable canning establishments are operated only during a part of the year. The time in operation varies according to the locality and the kind of goods packed. While some plants are able to commence the canning of early peas and small fruits in the latter part of May, and others continue the packing of apples into December, the busy season for most comes during the months of July, August, September, and October, September being the month of greatest activity. A comparatively small number of operatives are also employed during the winter months in labeling, wrapping, and packing—preparing the product for shipping—and in many factories where they manufacture their own cans the can-makers are employed throughout the year.

Table 8 shows the average number of wage-earners (men, women, and children) employed in canning and preserving fruits and vegetables during each month in the year.

TABLE 8.—*Canning and preserving, fruits and vegetables—average number of wage-earners for each month: 1905.*

January.....	5,168	July.....	47,823
February.....	4,739	August.....	103,035
March.....	5,650	September.....	132,828
April.....	7,465	October.....	87,141
May.....	13,203	November.....	30,326
June.....	28,869	December.....	13,609

This statement shows that the average number of wage-earners employed for the different months varied from 4,739 in February to 132,828 in September. While the greatest average number for any month was 132,828, there were 172,026 wage-earners employed during the period of greatest activity. In addition to these, 2,653 salaried officials were also employed. Of the total cost of materials entering into the product, \$27,669,626 was paid for raw materials, which consisted mainly of farm products, thus giving employment to a great number of farm laborers besides furnishing a market for the produce of thousands of farms.

Table 9 is a comparative summary, by states, arranged geographically, of the totals for the canning and preserving of fruits and vegetables as returned at the censuses of 1900 and 1905.

TABLE 9.—CANNING AND PRESERVING, FRUITS AND VEGETABLES—COMPARATIVE SUMMARY, BY STATES AND GEOGRAPHIC DIVISIONS: 1905 AND 1900.

STATE OR TERRITORY.	Census.	Num- ber of estab- lish- ments.	Capital.	WAGE-EARNERS AND WAGES.		Miscellane- ous expenses.	Cost of materials used.	Value of products.
				Average number.	Wages.			
United States.....	1905	2,261	\$47,629,497	39,988	\$10,428,521	\$5,275,619	\$51,582,460	\$78,142,022
	1900	1,813	27,795,621	37,189	8,251,471	2,216,495	37,382,541	56,427,412
North Atlantic division.....	1905	755	13,809,641	9,600	2,666,347	1,352,728	10,024,538	16,885,639
	1900	702	9,694,319	9,251	2,304,231	693,840	8,825,977	14,163,391
Maine.....	1905	77	1,213,027	733	215,756	189,616	1,028,876	1,891,790
	1900	59	865,825	904	203,509	43,119	762,102	1,335,671
New Hampshire.....	1905	4	25,738	15	3,929	3,461	10,493	20,947
	1900	3	21,642	19	5,957	270	21,111	29,964
Vermont.....	1905	4	84,763	52	15,108	14,759	59,763	112,711
	1900	3	68,528	111	21,762	3,390	83,361	166,184
Massachusetts.....	1905	5	97,800	84	35,797	2,798	116,255	165,804
	1900	9	48,375	139	39,945	7,392	384,600	531,545
Connecticut.....	1905	5	88,600	71	15,219	1,194	28,245	59,457
	1900	5	91,463	100	24,967	1,985	81,887	124,280
New York.....	1905	549	9,806,857	6,618	1,903,983	953,366	6,807,832	11,589,397
	1900	511	6,649,059	5,518	1,462,820	495,478	5,592,462	8,975,321
New Jersey.....	1905	59	1,718,192	1,558	348,156	155,091	1,432,209	2,204,365
	1900	73	1,429,221	1,992	422,092	83,418	1,401,101	2,199,176
Pennsylvania.....	1905	52	774,664	469	128,399	32,443	540,865	841,168
	1900	39	520,206	468	123,179	58,788	499,353	801,250
South Atlantic division.....	1905	643	8,496,906	10,955	2,082,923	741,675	10,663,573	14,973,558
	1900	463	6,541,786	11,132	2,032,103	469,517	11,862,096	16,380,226
Delaware.....	1905	59	1,005,028	999	186,511	66,643	1,030,640	1,456,185
	1900	51	966,660	1,437	226,149	27,169	1,083,142	1,570,790
Maryland.....	1905	384	6,910,888	8,978	1,743,656	645,873	8,898,527	12,466,549
	1900	276	5,182,330	8,707	1,686,579	426,897	10,270,082	13,993,663
Virginia.....	1905	159	512,979	829	136,531	23,669	647,895	910,859
	1900	88	218,533	637	77,576	7,289	342,689	535,900
West Virginia.....	1905	14	28,204	71	7,541	1,462	49,381	75,357
	1900	9	95,260	128	13,108	2,983	39,328	66,886
North Carolina.....	1905	18	32,607	57	6,889	3,342	24,637	44,741
	1900	19	30,340	78	10,736	414	44,494	64,400
South Carolina.....	1905	5	2,540	10	1,044	233	3,489	6,240
	1900	12	23,862	64	7,410	503	15,169	28,565
Georgia.....	1905	4	4,660	11	751	453	9,004	13,627
	1900	8	24,801	81	10,545	4,262	67,192	120,022
North Central division.....	1905	519	13,930,802	10,590	2,751,162	1,574,441	11,925,238	19,826,170
	1900	387	6,036,562	7,997	1,643,572	593,610	6,528,900	11,053,195
Ohio.....	1905	77	1,768,001	1,577	400,061	163,735	1,725,473	2,840,359
	1900	70	910,670	1,608	305,393	73,781	1,197,269	1,941,398
Indiana.....	1905	96	3,360,030	3,102	757,187	565,789	3,097,161	5,086,896
	1900	60	1,205,494	2,002	386,457	165,755	1,526,088	2,589,908
Illinois.....	1905	62	1,693,735	1,141	384,340	190,087	1,894,509	3,111,866
	1900	60	1,251,977	1,268	324,841	124,563	1,396,794	2,301,650
Michigan.....	1905	114	1,307,940	1,342	321,552	179,056	1,045,541	1,747,981
	1900	97	497,812	797	170,052	29,622	534,189	884,297
Wisconsin.....	1905	40	2,670,510	1,196	391,631	248,942	1,709,797	2,847,127
	1900	16	650,115	676	117,090	91,887	543,496	1,007,765
Minnesota.....	1905	16	245,320	147	39,174	13,434	145,146	253,985
	1900	4	43,650	45	8,523	1,452	17,929	49,200
Iowa.....	1905	40	1,985,493	1,163	292,512	154,744	1,594,396	2,779,804
	1900	26	1,027,321	699	184,710	63,185	767,231	1,359,958
Missouri.....	1905	62	411,886	530	80,590	21,844	353,368	508,913
	1900	44	295,600	625	107,672	21,318	346,866	594,656
Nebraska.....	1905	8	356,657	292	62,065	26,228	308,966	559,489
	1900	5	123,623	161	21,686	10,325	130,573	210,688
Kansas.....	1905	4	131,230	100	22,050	10,582	50,881	89,750
	1900	5	30,300	116	17,148	11,722	68,465	113,675
South Central division.....	1905	113	497,225	819	123,323	30,526	493,430	805,853
	1900	66	225,899	610	103,269	12,039	252,591	524,348
Kentucky.....	1905	9	188,982	316	40,461	9,405	185,074	288,516
	1900	8	95,600	231	36,903	10,100	75,346	192,787
Tennessee.....	1905	15	89,525	203	30,489	7,912	150,656	240,296
	1900	11	35,824	116	15,216	207	37,598	72,007

TABLE 9.—CANNING AND PRESERVING, FRUITS AND VEGETABLES—COMPARATIVE SUMMARY, BY STATES AND GEOGRAPHIC DIVISIONS: 1905 AND 1900—Continued.

STATE OR TERRITORY.	Census.	Number of establishments.	Capital.	WAGE-EARNERS AND WAGES.		Miscellaneous expenses.	Cost of materials used.	Value of products.
				Average number.	Wages.			
South Central division—Continued.								
Alabama.....	1905	5	\$6,675	13	\$1,724	\$205	\$4,416	\$8,456
	1900	3	7,585	16	2,380	135	3,418	7,947
Mississippi ¹	1905	3	15,347	4	626	431	2,313	3,359
Arkansas.....	1905	67	124,106	194	38,497	7,243	104,310	180,293
	1900	34	33,038	136	21,942	952	50,954	100,503
Texas.....	1905	14	72,590	89	11,526	5,330	46,661	84,933
	1900	10	53,852	111	26,828	1,245	85,275	151,104
Western division.....	1905	226	10,853,873	7,982	2,792,436	1,574,015	18,451,213	25,606,599
	1900	189	5,260,000	8,161	2,158,199	444,580	9,899,578	14,272,211
Idaho ²	1905	3	52,700	34	14,350	3,440	33,895	64,600
Colorado.....	1905	7	302,650	212	79,252	26,210	251,699	474,436
	1900	7	277,325	206	62,561	14,598	223,454	343,394
Utah.....	1905	18	927,862	369	99,390	41,267	506,176	801,958
	1900	8	304,258	141	37,565	6,024	211,279	300,349
Washington.....	1905	11	68,350	69	25,699	6,475	94,052	173,289
	1900	18	78,627	44	12,484	2,677	24,781	63,141
Oregon.....	1905	20	207,255	160	41,862	23,548	165,902	282,328
	1900	17	121,355	129	18,070	4,543	79,290	141,498
California.....	1905	167	9,295,056	7,138	2,531,883	1,473,075	17,399,489	23,809,988
	1900	139	4,478,435	7,641	2,027,519	416,738	9,360,774	13,423,829
Not distributed by states or divisions.....	³ 1905	5	41,050	42	12,330	2,234	24,468	44,203
	⁴ 1900	6	37,055	38	10,097	2,309	13,399	34,041

¹ None reported in 1900.² Not reported separately in 1900.³ Includes establishments distributed as follows: Rhode Island, 1; South Dakota, 1; Louisiana, 1; Oklahoma, 1; New Mexico, 1.⁴ Includes establishments distributed as follows: Rhode Island, 1; Florida, 2; Idaho, 2; New Mexico, 1.

The most significant fact revealed by this table is that the South Atlantic division fell from first place, according to value of products, in 1900 to fourth in 1905. The South Atlantic states comprise the section where the real birth and early growth of the canned goods industry took place, and until the present census the total value of products for this section has been larger than for any other geographic division. From 1900 to 1905, however, the total value of products from this group of states showed a loss of \$1,406,668.

This loss is, probably, entirely due to a decrease in the value of cans manufactured for sale rather than in the value of fruits and vegetables packed, for canning houses in Baltimore, which produced cans for sale to the value of \$1,846,820 in 1900, manufactured products of this class to the value of only \$414,621 in 1905, a decrease of \$1,432,199.

While the product from the South Atlantic division showed a slight decrease, that from the Western division increased from \$14,272,211 to \$25,606,599, giving this group of states first rank in production. The gain was principally in California, where the total value of products reported increased from \$13,423,829 in 1900 to \$23,809,988 in 1905.

The value of products of this industry in the North Central division increased from \$11,053,195 in 1900 to \$19,826,170 in 1905, advancing this division from fourth to second rank during the five years. The

growth in this group was general, not being confined to any one state. The 6 leading states in this division, ranked by value of products, were Indiana, increasing from \$2,589,908 in 1900 to \$5,086,896 in 1905; Illinois, from \$2,301,650 in 1900 to \$3,111,866 in 1905; Wisconsin, from \$1,007,765 in 1900 to \$2,847,127 in 1905; Ohio, from \$1,941,398 in 1900 to \$2,840,359 in 1905; Iowa, from \$1,359,958 in 1900 to \$2,779,804 in 1905; and Michigan, from \$884,297 in 1900 to \$1,747,981 in 1905. The other states in this division made smaller increases, and the total value of products reported for each was less than \$1,000,000.

The increase in value of products in the North Atlantic division was from \$14,163,391 in 1900 to \$16,885,639 in 1905, which left the division third in rank, as it was in 1900. The 3 leading states in this group, ranked according to value of products in 1905, were New York, New Jersey, and Maine. The total production reported for New York increased from \$8,975,321 in 1900 to \$11,589,397 in 1905; for New Jersey, from \$2,199,176 in 1900 to \$2,204,365 in 1905; and for Maine, from \$1,335,671 in 1900 to \$1,891,790 in 1905.

More than 83 per cent of the total value of products for the South Atlantic division was reported from Maryland, the value of products for this state amounting to \$13,993,663 in 1900 and \$12,466,549 in 1905. For Delaware, which ranked second in this group, \$1,570,790 was reported in 1900 and \$1,456,185 in

1905, and for Virginia, which ranked third, \$535,900 was reported in 1900 and \$910,859 in 1905.

The largest number of establishments was reported for the North Atlantic division and was 755, an increase of 53 over 1900. Of these, 549 were reported for New York, or 38 more than in 1900. The South Atlantic states were next, with 643 in 1905 and 463 in 1900. For Maryland there were reported 384 establishments, an increase of 108 over 1900, this being the greatest increase in number of establishments shown by any of the states.

The amount of capital invested was greatest in the North Central states, being \$13,930,802, an increase over 1900 of \$7,894,240, or 130.8 per cent, which advanced this division from third place in 1900 to first in 1905. The capital was rather evenly distributed through the several states. The 3 leading states in respect to amount of capital in 1905 were Indiana with \$3,360,030, Wisconsin with \$2,670,510, and Iowa with \$1,985,493. The second largest investment of capital was reported for the North Atlantic division in 1905, the amount being \$13,809,641, as compared with \$9,694,319 in 1900. Of these amounts, \$9,806,857 was reported for New York in 1905 and \$6,649,059 in 1900; \$1,718,192 for New Jersey in 1905 and \$1,429,221 in 1900; \$1,213,027 for Maine in 1905 and \$865,825 in 1900. The third largest investment in 1905 was reported for the Western states, amounting to \$10,853,873, an increase of \$5,593,873, or 106.3 per cent, over that of 1900. Of this amount, \$9,295,056 was reported for California, an investment more than double that reported for this state in 1900, and 85.6 per cent of the total for the Western division in 1905. In the South Atlantic division, which ranked fourth, the capital invested was \$8,496,906 in 1905 and \$6,541,786 in 1900. Of these amounts, \$6,910,888 was reported for the state of Maryland in 1905 and \$5,182,330 in 1900.

For the South Atlantic division the greatest average number of wage-earners was reported at both censuses; the number decreased, however, from 11,132 in 1900 to 10,955 in 1905. The North Central states were second in rank, with 10,590, an increase of 2,593 over the number reported in 1900. The North Atlantic states were third, with 9,600, as compared with 9,251 in 1900. The Western states were fourth, there being 7,982 wage-earners reported in 1905 and 8,161 in 1900. While the number of wage-earners decreased 179 in this group, the wages increased \$634,237. In the North Central states, which ranked second in amount of wages paid, the wages increased from \$1,643,572 in 1900 to \$2,751,162 in 1905, a gain of 67.4 per cent, while the average number of wage-earners increased but 32.4 per cent. In the North Atlantic states, which were third in amount of wages paid, this item in 1905 amounted to \$2,666,347, as compared with \$2,304,231 in 1900, a gain of 15.7 per cent, though the gain in number of employees was but 3.8 per cent. Also in the South Atlantic states, which were fourth, the average number of wage-earners decreased 1.6 per cent, but the wages increased from \$2,032,103 to \$2,082,923, or 2.5 per cent. In the South Central states the average number of wage-earners increased 34.3 per cent and the wages only 19.4 per cent during the period.

Table 10 shows the rank of the several states and territories in 1900 and 1905, by number of establishments, capital, wage-earners, wages, total value of products, value of canned vegetables, of canned fruits, and of dried fruits. The data from which the table is constructed are given in Table 9, which presents a comparative summary of the fruit and vegetable canning and preserving industry for 1900 and 1905, and in Table 15, which presents the detailed statistics for 1905.

TABLE 10.—CANNING AND PRESERVING, FRUITS AND VEGETABLES—RANK OF STATES AND TERRITORIES, BY NUMBER OF ESTABLISHMENTS, CAPITAL, WAGE-EARNERS, WAGES, AND VALUE OF PRODUCTS: 1905 AND 1900.

STATE.	RANK ACCORDING TO—															
	Number of establishments.		Capital.		Wage-earners and wages.				Value of products.							
					Average number.		Wages.		Total.		Canned vegetables.		Canned fruits.		Dried fruits.	
	1905	1900	1905	1900	1905	1900	1905	1900	1905	1900	1905	1900	1905	1900	1905	1900
California.....	3	3	3	3	2	2	1	1	1	2	8	3	1	1	1	1
Maryland.....	2	2	3	2	1	1	3	2	2	1	1	1	2	2	2	2
New York.....	1	1	1	1	3	3	2	3	3	3	2	2	3	3	2	2
Indiana.....	6	8	4	6	4	4	4	5	4	4	3	4	15	18	10	10
Illinois.....	10	8	9	5	10	8	7	6	5	5	4	6	21	15	5	4
Wisconsin.....	15	19	5	11	8	12	6	13	6	11	6	11	11	11	13	9
Ohio.....	7	7	7	9	5	6	5	7	7	7	7	7	11	11	13	9
Iowa.....	15	15	6	7	9	11	10	10	8	9	5	9	36	24	16	16
New Jersey.....	12	6	8	4	6	5	8	4	9	11	5	5	6	7	11	11
Maine.....	7	10	11	10	13	9	11	9	10	10	10	10	7	13	13	13
Michigan.....	5	4	10	13	7	10	9	11	11	12	13	17	4	4	3	3
Delaware.....	12	11	12	8	11	7	12	8	12	8	11	11	14	5	14	14
Virginia.....	4	5	15	17	12	13	13	15	13	15	12	14	17	12	11	11
Pennsylvania.....	14	13	14	12	15	15	14	12	14	13	14	13	13	11	9	9
Utah.....	18	25	13	14	16	19	15	18	15	18	15	15	9	16	12	12
Nebraska.....	26	29	17	18	18	18	18	24	16	19	16	18	22	21	18	18
Missouri.....	10	12	16	15	14	14	16	14	17	14	17	12	27	14	10	12
Colorado.....	27	28	18	16	19	17	17	16	18	17	18	16	16	26	11	11
Kentucky.....	25	25	21	20	17	16	20	19	19	20	20	19	31	23	23	23
Oregon.....	17	18	20	19	22	22	19	25	20	23	28	32	5	8	8	7
Minnesota.....	20	32	19	27	23	32	21	32	21	32	19	27	33	19	17	17
Tennessee.....	21	21	25	28	20	24	24	27	22	28	21	25	18	19	19	19
Arkansas.....	8	14	23	29	21	21	22	22	23	27	27	31	25	10	4	5
Washington.....	24	17	29	23	28	33	25	29	24	31	41	41	8	11	11	11
Massachusetts.....	28	23	24	26	26	20	23	17	25	16	24	24	12	32	32	32
Vermont.....	32	33	27	24	30	26	28	23	26	21	22	20	26	17	17	17
Kansas.....	32	29	22	31	24	24	26	26	27	26	23	21	35	29	29	29
Texas.....	22	22	28	25	25	26	30	20	28	22	30	23	10	10	10	10
West Virginia.....	22	23	32	21	27	23	31	28	29	29	25	28	20	20	20	20
Idaho.....	36	36	30	39	31	39	29	37	30	39	31	31	24	7	15	15
Connecticut.....	28	29	26	22	27	28	27	21	31	24	26	22	26	17	17	17
North Carolina.....	18	16	31	30	29	30	32	30	32	30	29	26	19	22	22	22
New Hampshire.....	32	33	33	34	32	35	34	35	33	33	32	30	30	25	11	13
Oklahoma.....	38	38	36	36	33	33	33	34	34	33	33	33	33	33	33	33
Georgia.....	32	25	41	32	35	29	41	31	35	25	42	34	23	11	11	11
New Mexico.....	38	38	40	35	36	34	36	33	36	35	34	29	33	27	27	27
Alabama.....	38	33	39	38	34	36	37	36	37	36	37	35	29	27	27	27
Rhode Island.....	38	38	37	37	37	37	35	38	38	38	39	37	28	28	28	28
South Carolina.....	28	20	42	33	36	31	38	34	38	34	36	33	32	28	28	28
South Dakota.....	38	38	35	35	37	37	40	37	40	37	35	35	37	37	37	37
Mississippi.....	36	36	34	34	38	38	42	38	41	38	38	38	37	37	37	37
Louisiana.....	38	38	38	38	38	38	39	39	42	42	40	40	34	34	34	34
Florida.....	36	36	36	36	38	38	39	39	37	37	36	36	30	30	30	30

The 5 leading states, ranked according to value of products reported at the census of 1905, were California, Maryland, New York, Indiana, and Illinois, in the order named. They occupied the same relative position in 1900 with the exception of Maryland and California, whose places were interchanged. California advanced from second place in value of products in 1900 to first in 1905, and from third to second in capital. At both censuses this state was third in number of establishments, second in number of employees, and first in amount of wages paid. Maryland dropped from second place in 1900 to third in 1905 in capital, was second in number of establishments at both censuses, was first in number of wage-earners, third in amount of wages paid, and second in value of products in 1905. New York was first at both censuses in number of establishments and capital, third in number of wage-earners and value of products, and advanced from third to second place in wages paid. Indiana ranked sixth in number of es-

tablishments and fourth in capital, wage-earners, wages, and value of products in 1905. Illinois was ninth in number of establishments and capital, tenth in wage-earners, seventh in wages, and fifth in value of products in 1905.

The canning of vegetables is the most important branch of the canning industry, forming 36.1 per cent of the total value of products in 1900 and 41.7 per cent in 1905. In the value of products for this part of the industry Maryland ranked first and New York second, both in 1900 and 1905. Indiana was fourth in 1900 and third in 1905, Illinois was sixth in 1900 and fourth in 1905, and California dropped from third in 1900 to eighth in 1905.

The climatic conditions in southern California have made the state famous for the fine quality of its fruits. The natural outcome has been to give this state first rank in the value of both canned and dried fruits produced. In 1900 California produced 64.9 per cent of the total value of canned and 61.2 per cent of the total

value of dried fruits reported in the United States. In 1905, 59.9 per cent of the total value of canned fruits for the country were reported from this state, while its percentage of the total value of dried fruits was increased to 88.1 per cent of the total for the country. Maryland held second rank in value of fruit canned, and New York ranked third in value of canned and second in value of dried fruits.

In the preparation of canned goods for the various classes of trade it is necessary to use different sizes of cans for the same product. The standard sizes in use are the number 1, number 2, and number 3—also called 1-pound, 2-pound, and 3-pound—and the gallon cans. In the compilation of the Census statistics it has been necessary to reduce the different sizes to a standard, the standard adopted being the size which is most generally used for each kind of goods. The unit of measure used is the "case" of 24 cans. In presenting the figures for beans, corn, peas, berries, cherries, and plums the standard of size is the number 2 can and the unit of measure a case of 24 such cans. The number 3 can is used as the standard for pumpkins, sweet potatoes, tomatoes, apples, apricots, peaches, and pears; also for fruits and vegetables other than those above mentioned, and grouped as "all other vegetables" and "all other fruits," the unit for these being a case of 24 number 3 cans. In making the reduction to these sizes, a case of 12 one-gallon cans is figured as the equivalent of two cases of number 2 cans, and two cases of number 3 are considered as the equivalent of three cases of number 2 cans. In the four succeeding tables the number of cases packed and the total value of four of the leading canned fruits and vegetables are given by states. By referring to Table 15 similar information can be obtained for any of the other fruits and vegetables that are classed separately.

TABLE 11.—Quantity and value of tomatoes packed, by states: 1905.

(Canning season of 1904.)

STATE.	Cases.	Value.
United States.....	9,301,264	\$13,885,169
Maryland.....	3,638,363	4,976,098
Indiana.....	1,156,143	1,820,876
New Jersey.....	796,724	1,273,426
Delaware.....	679,080	1,007,595
Virginia.....	563,145	747,838
California.....	541,776	845,805
Ohio.....	350,892	535,751
Utah.....	312,430	506,578
Missouri.....	280,280	413,886
New York.....	126,524	389,036
Kentucky.....	128,520	200,985
Michigan.....	113,670	188,429
Pennsylvania.....	96,790	162,071
Tennessee.....	89,821	132,390
Colorado.....	75,365	147,095
Illinois.....	68,501	100,478
Iowa.....	60,444	102,956
West Virginia.....	39,067	55,495
Arkansas.....	24,992	35,331
Kansas.....	21,505	30,391
All other states.....	80,862	152,659

In packing tomatoes Maryland easily led, reporting more than three times the number of cases packed in

Indiana, the second highest state, and 39.1 per cent of the total of 9,301,264 cases packed in the United States. The 5 leading states, in the order named, with the number of cases and value reported for each were: Maryland, 3,638,363 cases, valued at \$4,976,098; Indiana, 1,156,143 cases, valued at \$1,820,876; New Jersey, 796,724 cases, valued at \$1,273,426; Delaware, 679,080 cases, valued at \$1,007,595; and Virginia, 563,145 cases, valued at \$747,838. The other states producing over 100,000 cases each are California, Ohio, Utah, Missouri, New York, Kentucky, and Michigan, in the order named.

TABLE 12.—Quantity and value of corn packed, by states: 1905.

(Canning season of 1904.)

STATE.	Cases.	Value.
United States.....	11,209,397	\$15,952,066
Iowa.....	1,941,520	2,616,178
Illinois.....	1,773,085	2,403,720
Maryland.....	1,600,802	2,021,627
New York.....	1,444,344	2,272,682
Ohio.....	1,280,006	1,736,503
Maine.....	763,295	1,525,089
Indiana.....	678,950	958,455
Nebraska.....	394,826	533,400
Wisconsin.....	388,600	571,195
Pennsylvania.....	351,045	453,170
Minnesota.....	185,070	248,712
Delaware.....	152,900	207,810
Michigan.....	66,379	103,751
Vermont.....	42,839	96,468
Kansas.....	39,519	49,423
Missouri.....	38,440	53,640
Virginia.....	17,414	23,797
All other states.....	50,363	76,446

Table 12 indicates a total production of 11,209,397 cases of corn, valued at \$15,952,066. The first 5 states vary but little in the number of cases reported. Ranked according to number of cases packed they were Iowa, with 1,941,520 cases, valued at \$2,616,178; Illinois, with 1,773,085 cases, valued at \$2,403,720; Maryland, with 1,600,802 cases, valued at \$2,021,627; New York, with 1,444,344 cases, valued at \$2,272,682; and Ohio, with 1,280,006 cases, valued at \$1,736,503. These 5 states produced 8,039,757 cases, or 71.7 per cent of the total production for the United States, and the value of their product was \$11,050,710. The next seven states in order of production were Maine, Indiana, Nebraska, Wisconsin, Pennsylvania, Minnesota, and Delaware.

TABLE 13.—Quantity and value of peas packed, by states: 1905.

(Canning season of 1904.)

STATE.	Cases.	Value.
United States.....	4,694,492	\$7,928,791
New York.....	1,509,629	2,598,291
Wisconsin.....	1,226,538	2,011,226
Maryland.....	622,263	1,019,131
Indiana.....	425,314	644,439
Michigan.....	263,423	471,613
Delaware.....	131,147	178,729
New Jersey.....	118,200	245,270
California.....	68,142	144,033
Ohio.....	64,503	141,805
Utah.....	41,634	80,155
Pennsylvania.....	39,799	64,350
Iowa.....	29,754	47,615
Illinois.....	22,708	35,309
Virginia.....	12,500	24,500
All other states.....	118,938	222,325

Table 13 shows that during the season of 1904, 4,694,492 cases of peas, having a value of \$7,928,791, were packed in the United States. New York produced the greatest amount, 1,509,629 cases, valued at \$2,598,291. Wisconsin was second with 1,226,538 cases, valued at \$2,011,226. These 2 states produced 2,736,167 cases, or 58.3 per cent of the total production for the United States. The other 3 leading states in the order named, with the number of cases reported for each and total value were: Maryland, 622,263 cases, valued at \$1,019,131; Indiana, 425,314 cases, valued at \$644,439; and Michigan, 263,423 cases, valued at \$471,613. Delaware, New Jersey, Colorado (which is included in "all other states"), California, and Ohio followed in the order named.

TABLE 14.—Quantity and value of peaches packed, by states: 1905.

(Canning season of 1904.)

STATE.	Cases.	Value.
United States.....	1,302,876	\$3,894,272
California.....	744,715	2,640,524
Maryland.....	352,244	753,003
Michigan.....	68,269	179,838
Texas.....	30,086	52,989
Utah.....	17,845	43,868
Ohio.....	12,762	35,134
New York.....	10,060	39,399
New Jersey.....	9,767	19,370
All other states.....	57,128	130,147

In the canning of peaches California easily led all the other states, reporting 744,715 cases, valued at \$2,640,524. This amount exceeded the combined production of all other states, being 57.2 per cent of the total for the United States. Maryland ranked second, with 352,244 cases, valued at \$753,003, this quantity being more than five times the number of cases reported for Michigan, which was third, with 68,269 cases, valued at \$179,838. Other states, in order of the number of cases reported, were Texas, Utah, Ohio, New York, and New Jersey.

Table 15 shows the detailed statistics for canning and preserving fruits and vegetables, by states and territories, as returned for 1905. In the preparation of the detailed statistics by states it was found that, in several states where three or more establishments were engaged in the canning industry, there were less than three establishments canning some particular fruit or vegetable, which is shown separately in Table 15. For example, in the state of Colorado, of the seven establishments reporting, but two were engaged in canning fruits, but one in canning corn, and but one in canning peas. To publish the statistics for this state in detail would result in a disclosure of a part of the operations of such establishments. In this and all similar cases the statistics for the state are included in "all other states."

TABLE 15.—CANNING AND PRESERVING, FRUITS AND VEGETABLES—

	United States.	Alabama.	Arkansas.	California.	Connecticut.	Delaware.
1 Number of establishments.....	2,261	5	67	167	5	59
2 Capital:						
3 Total.....	\$47,629,497	\$6,675	\$124,106	\$9,295,056	\$88,600	\$1,005,028
4 Land.....	\$2,687,007	\$475	\$5,370	\$725,331	\$2,725	\$37,373
5 Buildings.....	\$9,144,868	\$1,200	\$37,564	\$1,788,688	\$24,479	\$116,197
6 Machinery, tools, and implements.....	\$10,268,496	\$1,600	\$29,310	\$1,595,468	\$12,830	\$182,746
7 Cash and sundries.....	\$25,529,126	\$3,400	\$51,862	\$5,185,569	\$48,566	\$668,712
8 Proprietors and firm members.....	2,447	13	100	99	4	86
9 Salaried officials, clerks, etc.:						
10 Total number.....	2,653	1	8	485	5	37
11 Total salaries.....	\$2,241,788	\$100	\$1,558	\$639,584	\$2,800	\$18,037
12 Officers of corporations—						
13 Number.....	633			71	1	4
14 Salaries.....	\$710,343			\$186,695	\$600	\$1,975
15 General superintendents, managers, clerks, etc.—						
16 Total number.....	2,020	1	8	414	4	33
17 Total salaries.....	\$1,531,445	\$100	\$1,558	\$452,889	\$2,200	\$16,062
18 Men—						
19 Number.....	1,775	1	8	329	3	31
20 Salaries.....	\$1,431,584	\$100	\$1,558	\$413,592	\$1,900	\$15,520
21 Women—						
22 Number.....	245			85	1	2
23 Salaries.....	\$99,861			\$39,297	\$300	\$542
24 Wage-earners, including pieceworkers, and total wages:						
25 Greatest number employed at any one time during the year.....	172,026	80	1,086	27,565	280	5,889
26 Least number employed at any one time during the year.....	71,388	58	1,000	8,300	111	2,081
27 Average number.....	39,988	13	194	7,138	71	999
28 Total wages.....	\$10,428,521	\$1,724	\$38,497	\$2,531,883	\$15,219	\$186,511
29 Men 16 years and over—						
30 Average number.....	16,760	6	68	2,489	28	354
31 Wages.....	\$5,902,779	\$1,204	\$19,148	\$1,227,180	\$8,354	\$87,474
32 Women 16 years and over—						
33 Average number.....	20,438	3	109	4,390	42	511
34 Wages.....	\$4,176,780	\$295	\$17,408	\$1,258,428	\$6,765	\$87,035
35 Children under 16 years—						
36 Average number.....	2,790	4	17	259	1	104
37 Wages.....	\$348,962	\$225	\$1,941	\$46,275	\$100	\$12,002
38 Average number of wage-earners, including pieceworkers, employed during each month:						
39 Men 16 years and over—						
40 January.....	3,067			578		40
41 February.....	2,926			524		46
42 March.....	3,563			713		77
43 April.....	4,484			1,070		90
44 May.....	6,797	11		1,470	2	155
45 June.....	12,685	11	6	2,090	1	546
46 July.....	20,686	29	28	4,170	11	175
47 August.....	39,715	15	181	5,497	105	1,095
48 September.....	53,096	3	317	5,180	110	1,487
49 October.....	34,355	3	233	4,430	59	602
50 November.....	13,148		51	2,700	40	142
51 December.....	6,598			1,446	2	93
52 Women 16 years and over—						
53 January.....	1,888			455		
54 February.....	1,604			326		
55 March.....	1,846			320		6
56 April.....	2,614			825		3
57 May.....	5,855			1,453	5	19
58 June.....	14,410	6		4,141		196
59 July.....	23,412	20	45	8,857	21	90
60 August.....	54,119	10	294	11,757	160	1,952
61 September.....	69,119	3	533	10,167	166	2,845
62 October.....	47,386	3	363	8,146	85	931
63 November.....	16,327		67	4,160	67	61
64 December.....	6,676			2,073		29
65 Children under 16 years—						
66 January.....	213			7		
67 February.....	209			9		
68 March.....	241			6		2
69 April.....	367			44		1
70 May.....	551			58		
71 June.....	1,774	1		254		39
72 July.....	3,725	24	12	1,049		13
73 August.....	9,201	24	60	950	6	404
74 September.....	10,613		88	419	6	588
75 October.....	5,400		41	191		197
76 November.....	851		2	87		2
77 December.....	335			34		2
78 Miscellaneous expenses:						
79 Total.....	\$5,275,619	\$205	\$7,243	\$1,473,075	\$1,194	\$66,643
80 Rent of works.....	\$149,365	\$40	\$261	\$53,490		\$2,244
81 Taxes, not including internal revenue.....	\$186,762	\$10	\$439	\$41,231	\$166	\$1,743
82 Rent of offices, interest, insurance, and all other sundry expenses not hitherto included.....	\$4,818,819	\$155	\$6,543	\$1,277,551	\$653	\$62,656
83 Contract work.....	\$120,673					
84 Materials used:						
85 Aggregate cost.....	\$51,582,460	\$4,416	\$104,310	\$17,399,489	\$28,245	\$1,030,640
86 Principal materials—						
87 Total cost.....	\$29,151,951	\$2,099	\$76,555	\$13,725,556	\$14,581	\$394,197
88 Purchased in raw state.....	\$27,669,626	\$2,099	\$75,553	\$13,214,985	\$14,551	\$389,412
89 Purchased in partially manufactured form.....	\$1,482,325		\$1,002	\$510,571	\$30	\$4,785
90 Fuel.....	\$896,095	\$220	\$5,852	\$88,314	\$1,124	\$13,274
91 Rent of power and heat.....	\$19,116			\$14,175		\$60
92 Mill supplies.....	\$65,903	\$17	\$131	\$9,760	\$140	\$1,219
93 All other materials.....	\$21,235,584	\$2,080	\$21,772	\$3,393,995	\$12,100	\$609,114
94 Freight.....	\$413,211			\$167,689	\$200	\$12,776

CANNING AND PRESERVING.

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DETAILED SUMMARY, BY STATES AND TERRITORIES: 1905.

Illinois.	Indiana.	Iowa.	Kansas.	Maine.	Maryland.	Michigan.	Minnesota.	Mississippi.	Missouri.	
62	96	40	4	77	384	114	16	3	62	1
\$1,693,735	\$3,360,030	\$1,985,493	\$131,230	\$1,213,027	\$6,910,888	\$1,307,940	\$245,320	\$15,347	\$411,886	2
\$106,565	\$138,790	\$124,418	\$7,750	\$43,800	\$322,211	\$86,001	\$7,295	\$425	\$15,805	3
\$456,430	\$618,270	\$429,167	\$23,178	\$198,750	\$857,083	\$350,867	\$66,623	\$2,250	\$83,387	4
\$451,460	\$776,158	\$490,666	\$24,401	\$415,890	\$946,376	\$352,608	\$72,087	\$9,700	\$142,503	5
\$679,280	\$1,826,812	\$941,242	\$75,901	\$554,587	\$4,785,218	\$518,464	\$99,315	\$2,972	\$170,191	6
97	37	8	2	80	552	98	6		80	7
77	197	82	11	173	383	113	27	3	83	8
\$71,777	\$129,748	\$68,585	\$3,735	\$35,387	\$298,167	\$70,056	\$11,780	\$680	\$15,357	9
15	70	28	7	95	37	41	16		21	10
\$14,750	\$58,629	\$27,450	\$1,360	\$37,797	\$75,265	\$28,030	\$3,010		\$3,439	11
62	127	54	4	78	346	72	11	3	62	12
\$57,027	\$71,119	\$41,135	\$2,375	\$47,590	\$222,902	\$42,026	\$8,770	\$680	\$11,918	13
59	112	49	4	68	315	64	10	3	57	14
\$55,827	\$66,687	\$38,835	\$2,375	\$43,674	\$210,166	\$39,531	\$8,620	\$680	\$11,668	15
3	15	5		10	31	8	1		5	16
\$1,200	\$4,432	\$2,300		\$3,916	\$12,736	\$2,495	\$150		\$250	17
5,550	12,514	6,670	556	5,524	33,568	5,389	951	47	3,231	18
1,440	4,475	2,866	216	1,329	2,160	2,160	604	40	1,786	19
1,141	3,102	1,163	100	733	8,978	1,342	147	4	530	20
\$384,340	\$757,187	\$292,512	\$22,050	\$215,756	\$1,743,656	\$321,552	\$39,174	\$626	\$80,590	21
745	1,438	667	42	452	3,169	492	59	1	162	22
\$299,183	\$473,752	\$204,929	\$15,199	\$165,699	\$816,920	\$173,652	\$21,590	\$250	\$37,463	23
359	1,489	388	34	238	4,699	802	59	1	272	24
\$77,787	\$258,733	\$74,920	\$4,870	\$45,128	\$795,586	\$141,939	\$13,320	\$153	\$34,937	25
37	175	108	24	43	1,110	48	29	2	96	26
\$7,370	\$24,702	\$12,663	\$1,981	\$4,929	\$131,150	\$5,961	\$4,264	\$223	\$8,190	27
205	190	44	4	76	804	81	6		4	28
136	206	44	4	83	836	53	6		4	29
136	224	55	5	96	945	90	8		4	30
192	270	90	7	116	1,042	105	14		4	31
244	798	108	26	126	1,758	102	11		4	32
321	1,746	169	41	113	2,579	526	10		4	33
414	1,426	245	46	110	2,455	790	38	2	42	34
1,860	2,814	2,009	94	304	8,825	772	141	8	572	35
2,990	4,651	3,409	140	3,507	9,824	1,289	315	2	783	36
1,616	3,005	1,518	109	596	6,492	1,249	125		474	37
533	747	214	19	256	1,532	684	23		39	38
293	288	99	9	41	936	163	13		10	39
70	106	10		65	486	14				40
44	108	10		57	517	7				41
42	115	10		90	698	11				42
32	126	10		83	883	15				43
42	690	30		64	2,489	21				44
56	1,251	76	7	56	3,945	764				45
71	625	87	50	40	4,220	1,079	36		40	46
332	3,092	1,273	87	178	14,123	1,623	195	12	997	47
1,656	5,952	2,143	131	1,053	16,340	2,562	345		1,340	48
1,059	4,734	895	125	712	10,296	2,186	114		852	49
217	790	81	7	370	1,758	1,182	17		35	50
87	279	31	1	88	633	160	1			51
10	49				131					52
2	51				132					53
2	50				150					54
2	61				228		4			55
8	89	1			233	7	6			56
8	199	11			632	96				57
4	150	23	61	2	1,015	117	19		6	58
85	339	466	96	118	3,645	87	96	24	386	59
175	630	655	91	309	4,290	115	184		471	60
144	432	120	40	82	2,316	88	39		271	61
2	88	18		5	283	54			18	62
11	62	2			165	12				63
\$190,087	\$565,789	\$154,744	\$10,582	\$189,616	\$645,873	\$179,056	\$13,434	\$431	\$21,844	64
\$8,040	\$1,720	\$435		\$6,338	\$52,859	\$1,159	\$131		\$242	65
\$6,563	\$13,699	\$9,492	\$461	\$10,329	\$26,481	\$8,800	\$784	\$80	\$1,350	66
\$175,484	\$549,684	\$147,817	\$16,121	\$163,314	\$562,753	\$168,819	\$12,519	\$351	\$20,037	67
	\$686			\$9,635	\$3,780	\$278			\$215	68
\$1,894,509	\$3,097,161	\$1,594,396	\$50,881	\$1,028,876	\$8,898,527	\$1,045,541	\$145,146	\$2,313	\$353,368	69
\$707,136	\$1,269,043	\$535,314	\$16,661	\$501,503	\$3,904,788	\$641,070	\$53,626	\$860	\$135,911	70
\$692,727	\$1,148,896	\$507,196	\$16,661	\$490,699	\$3,850,362	\$569,015	\$53,015	\$860	\$135,848	71
\$14,409	\$120,147	\$28,118		\$10,804	\$74,426	\$72,055	\$611		\$63	72
\$34,046	\$45,306	\$22,447	\$817	\$16,416	\$55,190	\$38,330	\$2,839	\$55	\$5,541	73
\$1,418	\$170	\$170		\$330		\$750	85			74
\$1,889	\$7,868	\$2,698	\$75	\$1,169	\$10,250	\$3,772	\$449	\$12	\$470	75
\$1,139,678	\$1,755,400	\$1,020,624	\$33,118	\$505,915	\$4,872,229	\$336,743	\$35,770	\$1,386	\$208,246	76
\$11,660	\$18,126	\$13,143	\$210	\$3,543	\$23,070	\$24,876	\$2,457		\$3,200	77

TABLE 15.—CANNING AND PRESERVING, FRUITS AND VEGETABLES—

		United States.	Alabama.	Arkansas.	California.	Connecticut.	Delaware.
78	Products:						
	Aggregate value.....	\$78,142,022	\$8,456	\$180,293	\$23,809,988	\$59,457	\$1,456,185
79	Canned vegetables—						
	Total value.....	\$45,262,148	\$4,146	\$36,998	\$2,366,661	\$51,670	\$1,406,102
80	Tomatoes—						
81	Cases.....	9,301,264	1,298	24,992	541,776	19,389	679,080
	Value.....	\$13,885,169	\$2,427	\$35,331	\$845,805	\$37,147	\$1,007,595
82	Corn—						
83	Cases.....	11,209,397	150		7,182	2,035	152,900
	Value.....	\$15,952,066	\$240		\$12,928	\$4,070	\$207,810
84	Peas—						
85	Cases.....	4,694,492			68,142		131,147
	Value.....	\$7,928,791			\$144,033		\$178,729
86	Beans—						
87	Cases.....	2,517,549	300		65,641		
	Value.....	\$3,972,332	\$360		\$133,494		
88	Pumpkins—						
89	Cases.....	244,457	20		18,852	1,800	500
	Value.....	\$345,337	\$30		\$30,156	\$2,550	\$500
90	Sweet potatoes—						
91	Cases.....	192,997	600	1,173	4,681		5,200
	Value.....	\$284,385	\$960	\$1,667	\$9,826		\$7,695
92	Others—						
93	Cases.....	1,213,134	62		274,309	6,545	2,476
	Value.....	\$2,894,068	\$129		\$1,190,419	\$7,903	\$3,773
94	Canned fruits—						
	Total value.....	\$11,644,042	\$4,210	\$8,262	\$6,978,083	\$7,387	\$36,731
95	Peaches—						
96	Cases.....	1,302,876	1,663	3,067	744,715		1,843
	Value.....	\$3,894,272	\$3,825	\$6,618	\$2,640,524		\$4,211
97	Pears—						
98	Cases.....	788,675	10		524,197		10,808
	Value.....	\$2,192,085	\$30		\$1,577,823		\$19,775
99	Apricots—						
100	Cases.....	539,082			532,038		
	Value.....	\$1,638,719			\$1,619,757		
101	Apples—						
102	Cases.....	486,945	167	1,025	31,286	5,242	383
	Value.....	\$732,128	\$260	\$1,644	\$67,591	\$7,275	\$625
103	Cherries—						
104	Cases.....	317,366			171,298		
	Value.....	\$815,572			\$457,169		
105	Plums—						
106	Cases.....	298,313	55		196,379	50	
	Value.....	\$495,303	\$75		\$349,307	\$112	
107	Raspberries—						
108	Cases.....	177,227			5,282		90
	Value.....	\$409,452			\$18,919		\$235
109	Blackberries—						
110	Cases.....	164,429	10		47,071		3,040
	Value.....	\$285,482	\$20		\$101,688		\$3,760
111	Strawberries—						
112	Cases.....	141,527			15,114		
	Value.....	\$342,985			\$48,033		
113	Other—						
114	Cases.....	386,452			54,215		6,150
	Value.....	\$835,044			\$97,272		\$8,135
115	Dried fruits—						
116	Total pounds.....	343,579,623		3,001,003	300,308,919		
	Total value.....	\$15,664,784		\$129,094	\$13,800,601		
117	Raisins—						
118	Pounds.....	121,409,881			121,409,881		
	Value.....	\$6,349,381			\$6,349,381		
119	Prunes—						
120	Pounds.....	117,808,181			114,580,431		
	Value.....	\$3,299,628			\$3,169,878		
121	Apples—						
122	Pounds.....	40,737,089		3,001,003	811,254		
	Value.....	\$1,758,610		\$129,094	\$40,659		
123	Peaches—						
124	Pounds.....	25,861,074			25,845,364		
	Value.....	\$1,702,205			\$1,701,105		
125	Apricots—						
126	Pounds.....	19,559,573			19,559,573		
	Value.....	\$1,410,838			\$1,410,838		
127	Other—						
128	Pounds.....	18,203,825			18,102,416		
	Value.....	\$1,144,122			\$1,128,740		
129	All other products.....	\$5,571,048	\$100	\$5,939	\$664,643	\$400	\$13,352
130	Power:						
131	Number of establishments reporting.....	1,402	1	14	148	4	47
	Total horsepower.....	44,879	20	202	3,960	128	1,275
	Owned—						
	Engines—						
	Steam—						
132	Number.....	1,779	1	8	156	4	59
133	Horsepower.....	42,102	20	163	3,218	128	1,252
	Gas or gasoline—						
134	Number.....	149		6	24		1
135	Horsepower.....	1,157		15	105		2
	Water wheels—						
136	Number.....	6					
137	Horsepower.....	98					
	Water motors—						
138	Number.....	5					
139	Horsepower.....	37					
	Electric motors—						
140	Number.....	35			4		1
141	Horsepower.....	380			33		1
142	Other power, horsepower.....	24		24			
	Rented—						
	Electric motors—						
143	Number.....	126			83		
144	Horsepower.....	918			579		
145	Other kind, horsepower.....	163			25		20
146	Furnished to other establishments, horsepower.....	17					

CANNING AND PRESERVING.

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DETAILED SUMMARY, BY STATES AND TERRITORIES: 1905—Continued.

Illinois.	Indiana.	Iowa.	Kansas.	Maine.	Maryland.	Michigan.	Minnesota.	Mississippi.	Missouri.	
\$3,111,866	\$5,086,896	\$2,779,804	\$89,750	\$1,891,790	\$12,466,549	\$1,747,981	\$253,985	\$3,359	\$508,913	78
\$2,946,788	\$4,422,958	\$2,772,340	\$88,975	\$1,714,414	\$9,556,611	\$872,145	\$251,985	\$3,347	\$485,375	79
68,501	1,156,143	60,444	21,505	114	3,638,363	113,670	1,520	2,242	280,280	80
\$100,478	\$1,820,876	\$102,956	\$30,391	\$272	\$4,976,098	\$188,429	\$2,280	\$3,322	\$413,886	81
1,773,085	678,950	1,941,520	39,519	763,295	1,600,802	66,379	185,070		38,440	82
\$2,403,720	\$958,455	\$2,616,178	\$49,423	\$1,525,089	\$2,021,627	\$103,751	\$248,712		\$53,640	83
22,708	425,314	29,754	3,506	4,008	622,263	263,423				84
\$35,309	\$644,439	\$47,615	\$4,143	\$7,348	\$1,019,131	\$471,613				85
243,827	202,501	2,237	1,666	54,805	870,121	31,273	100		13	86
\$321,458	\$491,233	\$2,165	\$1,666	\$92,231	\$1,031,025	\$53,335	\$250		\$17	87
28,714	35,278	907	2,790	2,105	19,592	8,828	248		3,487	88
\$34,980	\$57,417	\$1,131	\$2,890	\$3,341	\$24,283	\$10,076	\$543		\$4,182	89
	1,383		305		109,347				9,667	90
	\$2,330		\$305		\$148,906				\$13,650	91
31,642	319,234	1,580	107	29,883	197,118	23,795	140	11		92
\$50,843	\$448,208	\$2,295	\$157	\$86,133	\$335,541	\$44,941	\$200	\$25		93
\$15,115	\$28,066	\$100	\$225	\$121,173	\$1,765,824	\$501,098	\$990	\$12	\$5,964	94
4,070	6,065				352,244	68,269		5	2,287	95
\$9,609	\$14,915				\$753,003	\$179,838		\$12	\$3,794	96
	109			270	126,213	3,960				97
	\$917			\$486	\$199,802	\$17,686				98
										99
										100
1,482		83	150	3,088	47,117	68,454			1,369	101
\$2,225		\$100	\$225	\$6,794	\$70,980	\$103,419			\$2,086	102
	80				30,104	12,684				103
	\$195				\$47,869	\$44,801				104
	1,525				5,902	37,020				105
	\$1,595				\$9,383	\$51,227				106
					30,442	6,298				107
					\$47,349	\$19,946				108
					58,758	9,077			42	109
					\$81,164	\$20,537			\$54	110
56	160				72,130	8,900			20	111
\$100	\$300				\$129,324	\$32,758			\$30	112
2,121	4,953			50,612	195,695	13,428				113
\$3,181	\$10,144			\$113,893	\$426,950	\$30,886	487			114
							\$990			115
1,518,145						3,665,221			18,000	116
\$67,443						\$179,680			\$900	117
										118
										119
										120
1,518,145						3,632,781			18,000	121
\$67,443						\$177,343			\$900	122
										123
										124
										125
										126
										127
						32,440				128
						\$2,337				129
\$82,520	\$635,872	\$7,364	\$550	\$56,203	\$1,144,114	\$195,058	\$1,010		\$16,674	130
44	95	40	4	72	245	72	15	3	53	131
1,753	4,438	2,348	103	1,154	5,685	2,197	398	50	885	132
54	115	52	6	81	314	86	16	2	54	133
1,701	4,127	2,302	103	1,036	5,561	2,132	397	40	881	134
6	4	1		2	9	10			2	135
26	45	10		8	124	36			4	136
				1						137
				30						138
	1									139
	20									140
1	14					1				141
6	136					11				142
										143
8	8	7		2		1				144
20	110	36		5		1				145
				75		17	1	10		146
					12					

TABLE 15.—CANNING AND PRESERVING, FRUITS AND VEGETABLES.—

		Nebraska.	New Jersey.	New York.	North Carolina.	Ohio.	Oregon.
1	Number of establishments	8	59	549	18	77	20
2	Capital:						
3	Total	\$356,657	\$1,718,192	\$9,806,857	\$32,607	\$1,768,001	\$207,255
4	Land	\$13,100	\$85,180	\$506,304	\$8,600	\$87,603	\$32,849
5	Buildings	\$82,000	\$348,060	\$2,116,425	\$5,375	\$362,437	\$46,385
6	Machinery, tools, and implements	\$93,500	\$393,947	\$2,367,393	\$7,195	\$470,266	\$40,325
7	Cash and sundries	\$168,057	\$891,005	\$4,816,735	\$11,437	\$847,695	\$87,696
8	Proprietors and firm members	5	69	592	23	97	21
9	Salaried officials, clerks, etc.:						
10	Total number	20	48	428	5	117	12
11	Total salaries	\$11,184	\$35,478	\$444,797	\$885	\$75,327	\$10,585
12	Officers of corporations—						
13	Number	13	13	73	1	31	4
14	Salaries	\$5,590	\$12,850	\$139,488	\$100	\$23,795	\$5,775
15	General superintendents, managers, clerks, etc.—						
16	Total number	7	35	355	4	86	5
17	Total salaries	\$5,594	\$22,628	\$305,309	\$785	\$51,532	\$4,810
18	Men—						
19	Number	7	29	307	4	80	7
20	Salaries	\$5,594	\$20,376	\$282,569	\$785	\$50,712	\$4,290
21	Women—						
22	Number		6	48		6	1
23	Salaries		\$2,252	\$22,740		\$820	\$520
24	Wage-earners, including pieceworkers, and total wages:						
25	Greatest number employed at any one time during the year	1,631	6,274	25,942	356	8,349	847
26	Least number employed at any one time during the year	663	2,809	10,589	175	2,111	409
27	Average number	292	1,558	6,618	57	1,577	160
28	Total wages	\$62,065	\$348,156	\$1,903,983	\$6,889	\$400,061	\$41,862
29	Men 16 years and over—						
30	Average number	157	675	3,066	18	864	88
31	Wages	\$38,672	\$202,396	\$1,161,649	\$3,640	\$280,179	\$18,229
32	Women 16 years and over—						
33	Average number	90	847	3,391	28	661	105
34	Wages	\$18,818	\$141,410	\$720,434	\$2,421	\$114,183	\$21,134
35	Children under 16 years—						
36	Average number	45	36	161	11	52	17
37	Wages	\$4,575	\$4,350	\$21,900	\$828	\$5,699	\$2,499
38	Average number of wage-earners, including pieceworkers, employed during each month:						
39	Men 16 years and over—						
40	January	8	200	592	3	48	
41	February	8	221	515	3	42	
42	March	8	304	548	3	59	
43	April	11	285	675	3	57	1
44	May	17	319	880	5	161	3
45	June	26	515	2,108	10	462	10
46	July	44	432	5,428	45	668	72
47	August	730	1,321	5,224	67	2,895	67
48	September	803	2,040	7,778	62	3,530	86
49	October	149	1,546	6,751	11	1,716	160
50	November	65	575	3,998	2	544	75
51	December	15	342	2,295	2	186	24
52	Women 16 years and over—						
53	January	8	15	577		19	8
54	February	8	16	438		17	
55	March	8	20	401		31	
56	April	9	17	479		28	
57	May	9	118	652	4	54	
58	June	10	307	2,099	29	268	2
59	July	89	162	4,544	92	466	294
60	August	420	2,036	6,541	124	1,799	210
61	September	363	3,893	9,146	82	2,809	117
62	October	85	2,540	7,824	5	1,942	353
63	November	62	825	5,239		416	204
64	December	9	215	2,752		83	79
65	Children under 16 years—						
66	January		4	11			1
67	February		4	11			
68	March		4	11			
69	April		4	13			
70	May		4	12			
71	June		36	93	9		
72	July	15	14	305	43	32	48
73	August	218	83	410	44	70	43
74	September	240	140	571	32	177	40
75	October	45	98	346		212	48
76	November	22	31	120		128	16
77	December		10	29		5	9
78	Miscellaneous expenses:						
79	Total	\$26,228	\$155,091	\$953,366	\$3,342	\$163,735	\$23,548
80	Rent of works	\$1	\$1,110	\$10,617	\$40	\$3,210	
81	Taxes, not including internal revenue	\$801	\$6,547	\$26,528	\$215	\$9,311	\$1,282
82	Rent of offices, interest, insurance, and all other sundry expenses not hitherto included	\$25,426	\$147,434	\$913,986	\$899	\$151,214	\$22,296
83	Contract work			\$2,235	\$2,228		
84	Materials used:						
85	Aggregate cost	\$308,966	\$1,432,209	\$6,807,832	\$24,637	\$1,725,473	\$165,902
86	Principal materials—						
87	Total cost	\$95,259	\$717,877	\$3,600,148	\$11,075	\$755,413	\$97,364
88	Purchased in raw state	\$90,702	\$696,667	\$3,056,954	\$11,075	\$746,419	\$83,305
89	Purchased in partially manufactured form	\$4,557	\$21,210	\$543,194		\$8,994	\$14,059
90	Fuel	\$4,239	\$19,393	\$217,227		\$17,321	\$4,142
91	Rent of power and heat		\$125	\$725		\$467	
92	Mill supplies	\$318	\$1,936	\$14,082		\$1,201	
93	All other materials	\$207,350	\$686,959	\$2,939,468	\$12,909	\$1,803	\$108
94	Freight	\$1,800	\$5,919	\$36,182	\$90	\$942,578	\$63,619
95						\$7,157	\$699

¹Includes establishments distributed as follows: Colorado, 7; Georgia, 4; Idaho, 3; Kentucky, 9; Louisiana, 1; Massachusetts, 5; New Hampshire, 4; New Mexico, 1; Oklahoma, 1; Rhode Island, 1; South Dakota, 1; Washington, 11.

CANNING AND PRESERVING.

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DETAILED SUMMARY, BY STATES AND TERRITORIES: 1905—Continued.

Pennsylvania.	South Carolina.	Tennessee.	Texas.	Utah.	Vermont.	Virginia.	West Virginia.	Wisconsin.	All other states. ¹	
52	5	15	14	18	4	159	14	40	48	1
\$774,664	\$2,540	\$89,525	\$72,590	\$927,862	\$84,763	\$512,979	\$28,204	\$2,670,510	\$781,930	2
\$22,502	\$205	\$4,125	\$2,755	\$73,228	\$900	\$19,210	\$2,550	\$157,817	\$45,745	3
\$135,610	\$330	\$15,825	\$18,755	\$190,480	\$23,192	\$64,797	\$6,500	\$474,812	\$199,752	4
\$331,340	\$740	\$23,750	\$30,000	\$114,061	\$27,550	\$110,215	\$6,130	\$530,065	\$217,616	5
\$285,212	\$1,265	\$45,825	\$20,480	\$550,093	\$33,121	\$318,757	\$13,024	\$1,507,816	\$318,817	6
55	5	16	7	6	2	239	28	3	31	7
47		12	8	36	7	27	2	149	50	8
\$21,182		\$10,342	\$4,101	\$24,735	\$4,400	\$5,825	\$145	\$134,603	\$40,848	9
15		4	1	14	1	2		40	15	10
\$4,525		\$3,250	\$1,500	\$8,230	\$1,200	\$1,100		\$45,490	\$18,450	11
32		8	7	22	6	25	2	109	35	12
\$16,657		\$7,092	\$2,601	\$16,505	\$3,200	\$4,725	\$145	\$89,113	\$22,398	13
31		8	7	21	5	24	2	99	31	14
\$16,297		\$7,092	\$2,601	\$16,385	\$2,800	\$4,699	\$145	\$85,131	\$21,375	15
1				1	1	1		10	4	16
\$360				\$120	\$400	\$26		\$3,982	\$1,023	17
2,959	73	1,054	546	1,512	340	4,808	362	5,058	3,015	18
1,425	52	343	330	468	33	3,018	257	1,595	1,156	19
469	10	203	89	369	52	829	71	1,196	783	20
\$128,399	\$1,044	\$30,489	\$11,526	\$99,390	\$15,108	\$136,531	\$7,541	\$391,631	\$212,569	21
177	3	67	20	142	26	239	16	739	311	22
\$74,522	\$500	\$18,197	\$4,921	\$48,739	\$10,874	\$59,764	\$2,966	\$307,038	\$118,496	23
225	6	112	44	171	23	494	55	384	406	24
\$47,289	\$481	\$10,526	\$4,719	\$39,804	\$3,884	\$68,675	\$4,575	\$74,850	\$86,273	25
67	1	24	25	56	3	96		73	66	26
\$6,588	\$68	\$1,766	\$1,886	\$10,847	\$350	\$8,092		\$9,743	\$7,800	27
31		9		14		1		86	43	28
29		9		13		1		47	29	29
33		9		32	5	1		109	100	30
80		10		34	6	2		227	132	31
41		30		42	5	59		300	113	32
81	7	60	57	72	11	95		671	275	33
222	12	99	89	179	34	172		2,480	534	34
560	13	222	82	271	28	980	55	2,280	659	35
584	11	211	12	489	180	1,029	71	1,386	720	36
348		96		436	29	479	66	715	706	37
103		31		79	9	43		358	831	38
53		18		43		6		165	72	39
8				2		1		27	25	40
17				13	2	2		19	23	41
22				17	1	2		23	37	42
17				23	2	26		21	99	44
93	8	15	145	48	12	85		274	205	45
362	26	100	196	156	42	239		1,007	440	46
767	24	482	179	350	41	2,150	173	1,155	1,076	47
822	14	456	8	746	119	2,259	260	1,147	1,406	48
420		186		612	41	1,081	227	539	1,179	49
111		50		66	14	80		275	298	50
55		20		15		1		96	47	51
									1	52
									6	53
				10						54
				10						55
				8				5	6	56
20	1	10	96	16		5		97	59	57
156	2	22	91	61		71		199	124	58
220	7	36	97	171		401		258	212	59
225	2	77		227	36	465		209	208	60
138		77	16	161		210		85	150	61
33		46		3				23	26	62
12		20		5						63
\$32,443	\$233	\$7,912	\$5,330	\$41,267	\$14,759	\$23,669	\$1,462	\$248,942	\$54,476	64
\$1,441	\$5	\$1,242	\$15	\$55	\$240	\$2,284	81	\$800	\$1,345	65
\$1,233	\$8	\$830	\$426	\$2,936	\$306	\$1,809	\$113	\$12,452	\$3,367	66
\$29,720	\$220	\$5,840	\$4,889	\$38,276	\$14,213	\$19,487	\$1,348	\$235,390	\$49,764	67
\$49						\$89		\$300		68
\$540,865	\$3,489	\$150,656	\$46,661	\$506,176	\$59,763	\$647,895	\$49,381	\$1,709,797	\$724,940	69
\$242,873	\$1,460	\$71,835	\$22,906	\$185,131	\$27,030	\$240,182	\$18,204	\$727,691	\$358,603	70
\$240,441	\$1,460	\$50,335	\$22,506	\$183,306	\$27,030	\$238,672	\$18,204	\$720,771	\$319,900	71
\$2,432		\$21,500	\$400	\$1,825		\$1,510		\$6,920	\$38,703	72
\$7,174	\$150	\$1,912	\$1,000	\$8,411	\$1,494	\$8,175	\$624	\$26,110	\$16,085	73
						\$25				74
\$739	\$90	\$200	\$90	\$688	\$353	\$534		\$3,451	\$1,572	75
\$283,646	\$1,803	\$74,519	\$22,065	\$302,489	\$30,886	\$394,593	\$30,553	\$913,332	\$330,645	76
\$6,433	\$70	\$2,190	\$600	\$9,457		\$4,386		\$39,213	\$18,035	77

TABLE 15.—CANNING AND PRESERVING, FRUITS AND VEGETABLES—

		Nebraska.	New Jersey.	New York.	North Carolina.	Ohio.	Oregon.
78	Products:						
	Aggregate value	\$559,489	\$2,204,365	\$11,589,397	\$44,741	\$2,840,359	\$282,328
79	Canned vegetables—						
	Total value	\$541,710	\$1,923,883	\$6,836,451	\$25,168	\$2,718,931	\$30,045
80	Tomatoes—						
81	Cases	3,210	796,724	184,894	10,436	350,892	4,300
	Value	\$4,930	\$1,273,426	\$389,036	\$17,995	\$535,751	\$8,565
82	Corn—						
83	Cases	394,826	100	1,444,344	1,191	1,280,006	.....
	Value	\$533,400	\$300	\$2,272,682	\$1,864	\$1,736,503	.....
84	Peas—						
85	Cases		118,200	1,509,629		64,503	1,408
	Value		\$245,270	\$2,598,291		\$141,805	\$2,816
86	Beans—						
87	Cases	1,000	152,555	551,081	4,859	143,606	4,009
	Value	\$1,200	\$272,755	\$1,055,253	\$5,309	\$241,125	\$10,892
88	Pumpkins—						
89	Cases	1,533	13,682	45,063		33,656	2,590
	Value	\$1,900	\$14,787	\$72,780		\$44,546	\$6,095
90	Sweet potatoes—						
91	Cases		21,547	329			
	Value		\$40,952	\$329			
92	Others—						
93	Cases	213	28,868	186,728		8,322	908
	Value	\$280	\$76,393	\$448,080		\$19,201	\$1,677
94	Canned fruits—						
	Total value	\$14,779	\$194,543	\$1,207,760	\$18,993	\$49,964	\$214,363
95	Peaches—						
96	Cases	7,427	9,767	10,060	4,228	12,762	1,670
	Value	\$11,415	\$19,370	\$39,399	\$8,500	\$35,134	\$5,312
97	Pears—						
98	Cases		34,094	51,309			14,174
	Value		\$97,202	\$172,944			\$43,464
99	Apricots—						
100	Cases			435			
	Value			\$1,630			
101	Apples—						
102	Cases	2,526		259,296	359	3,427	15,943
	Value	\$3,364		\$354,817	\$617	\$5,145	\$35,170
103	Cherries—						
104	Cases		2,974	46,160		252	27,346
	Value		\$8,661	\$133,814		\$1,160	\$72,465
105	Plums—						
106	Cases			41,195		2,831	1,637
	Value			\$58,839		\$3,438	\$3,045
107	Raspberries—						
108	Cases		1,476	125,303		79	4,342
	Value		\$4,202	\$292,240		\$384	\$15,549
109	Blackberries—						
110	Cases		2,435	6,690	7,602	600	4,694
	Value		\$5,020	\$19,308	\$9,636	\$2,000	\$8,635
111	Strawberries—						
112	Cases		12,669	18,737	125	359	9,757
	Value		\$30,950	\$60,623	\$240	\$903	\$30,324
113	Other—						
114	Cases		12,974	26,079		1,726	123
	Value		\$29,138	\$74,146		\$1,800	\$399
115	Dried fruits—						
116	Total pounds			31,543,381		3,750	863,000
	Total value			\$1,346,040		\$300	\$31,000
117	Raisins—						
118	Pounds						
119	Value						
120	Prunes—						
121	Pounds						813,000
122	Value						\$28,000
123	Apples—						
124	Pounds			31,458,702		3,750	50,000
	Value			\$1,331,815		\$300	\$3,000
125	Peaches—						
126	Pounds			15,710			
	Value			\$1,100			
127	Apricots—						
128	Pounds						
129	Value			68,969			
	Other—			\$13,045			
	Value						
130	All other products	\$3,000	\$85,939	\$2,199,146	\$580	\$71,164	\$6,920
131	Power:						
	Number of establishments reporting	8	54	176	4	73	8
132	Total horsepower	378	1,801	8,346	48	2,669	212
133	Owned—						
	Engines—						
134	Steam—						
135	Number	13	93	310	3	78	9
136	Horsepower	370	1,737	7,837	43	2,321	206
137	Gas or gasoline—						
138	Number	2	8	53		6	
139	Horsepower	8	44	295		148	
140	Water wheels—						
141	Number		1	3			1
142	Horsepower		3	64			1
143	Water motors—						
144	Number			2		2	
145	Horsepower			7		10	
146	Electric motors—						
	Number		2	4		5	
	Horsepower		7	41		130	
	Other power, horsepower						
	Rented—						
143	Electric motors—						
144	Number			19		2	1
145	Horsepower			102		60	5
146	Other kind, horsepower		10		5		
	Furnished to other establishments, horsepower						

CANNING AND PRESERVING.

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DETAILED SUMMARY, BY STATES AND TERRITORIES: 1905—Continued.

Pennsylvania.	South Carolina.	Tennessee.	Texas.	Utah.	Vermont.	Virginia.	West Virginia.	Wisconsin.	All other states.	
\$841,168	\$6,240	\$240,296	\$84,933	\$801,958	\$112,711	\$910,859	\$75,357	\$2,847,127	\$1,245,422	78
\$788,321	\$4,284	\$165,157	\$19,705	\$659,509	\$111,111	\$879,905	\$57,662	\$2,732,967	\$786,824	79
96,790	1,677	89,821	8,962	312,430		563,145	39,067	6,699	222,900	80
\$162,071	\$2,934	\$132,390	\$15,296	\$506,578		\$747,838	\$55,495	\$11,496	\$394,075	81
351,045		6,765	31		42,839	17,414	188	388,600	32,721	82
\$453,170		\$10,350	\$53		\$96,468	\$23,797	\$200	\$571,195	\$46,441	83
39,799				41,634		12,500		1,226,538	110,016	84
\$64,350				\$80,155		\$24,500		\$2,011,226	\$208,018	85
79,763	213	10,451		5,303	5,445	17,360	1,668	33,359	34,393	86
\$91,416	\$200	\$11,394		\$8,220	\$10,040	\$27,441	\$1,967	\$55,968	\$51,858	87
5,647		413		1,160				4,099	13,393	88
\$6,506		\$548		\$2,276				\$5,657	\$18,163	89
225		6,267	2,535			29,738				90
\$319		\$10,475	\$4,356			\$42,615				91
4,104	431			635	1,211	8,653		47,250	38,909	92
\$10,489	\$1,090			\$2,280	\$4,603	\$13,714		\$77,425	\$68,269	93
\$41,576	\$1,796	\$21,326	\$63,242	\$91,686		\$22,305	\$17,695		\$210,774	94
430	487		30,086	17,845		3,651	5,730		14,576	95
\$1,409	\$1,216		\$52,989	\$43,868		\$6,804	\$16,055		\$36,452	96
4,029	57			8,300		449			10,306	97
\$7,756	\$180			\$21,079		\$718			\$32,223	98
				3,362					3,247	99
				\$8,200					\$9,132	100
17,159	143	750	200	2,346		402	200		24,348	101
\$23,463	\$225	\$1,140	\$402	\$4,687		\$685	\$240		\$38,949	102
885				2,749		5,375			17,459	103
\$3,259				\$6,370		\$6,455			\$36,354	104
1,079				3,428		11	1,200		6,001	105
\$1,873				\$4,329		\$13	\$1,400		\$10,667	106
904				811					2,200	107
\$1,396				\$2,217					\$7,025	108
49	100	4,206	6,194	201		5,355			8,305	109
\$84	\$175	\$4,986	\$8,141	\$467		\$6,670			\$13,137	110
900									2,600	111
\$1,200									\$8,200	112
558		9,550	380	287		750			6,354	113
\$1,136		\$15,200	\$1,710	\$469		\$960			\$18,635	114
218,454				6,250					2,433,500	115
\$6,576				\$400					\$102,750	116
										117
										118
				6,250					2,408,500	119
				\$400					\$101,350	120
218,454									25,000	121
\$6,576									\$1,400	122
										123
										124
										125
										126
										127
										128
\$4,695	\$160	\$53,813	\$1,986	\$50,363	\$1,600	\$8,649		\$114,160	\$145,074	129
46	1	13	9	18	4	61	2	39	29	130
880	12	360	149	500	79	955	36	2,830	1,028	131
62	1	15	9	18	5	60	2	57	36	132
870	12	360	149	500	79	943	36	2,564	1,014	133
1						2		7	5	134
5						12		256	14	135
										136
										137
										138
										139
1								2		140
5								10		141
										142
										143
										144
										145
										146
		5								

CANNING AND PRESERVING, FISH.

Table 16 is a comparative summary of the statistics of establishments engaged in canning and preserving fish as returned at the censuses of 1890, 1900, and 1905, with the percentage of increase for each census period.

TABLE 16.—Canning and preserving, fish—comparative summary, with per cent of increase: 1890 to 1905.

	CENSUS.			PER CENT OF INCREASE.	
	1905 ¹	1900	1890	1900 to 1905	1890 to 1900
Number of establishments.	373	346	110	7.8	214.5
Capital.	\$19,853,016	\$19,454,222	\$3,186,975	2.0	510.4
Salaries, officials, clerks, etc., number.	785	611	182	28.5	235.7
Salaries.	\$873,483	\$580,220	\$120,253	50.5	382.5
Wage-earners, average number.	6,959	13,355	5,020	47.9	166.1
Total wages.	\$3,241,740	\$4,207,414	\$1,128,143	23.0	273.0
Men 16 years and over.	5,262	9,676	3,787	45.6	155.5
Wages.	\$2,733,157	\$3,711,282	\$986,689	26.2	276.1
Women 16 years and over.	1,367	2,533	841	46.0	201.2
Wages.	\$445,228	\$369,781	\$121,059	20.4	205.5
Children under 16 years.	330	1,146	392	71.2	192.3
Wages.	\$58,355	\$126,351	\$20,395	53.8	519.5
Miscellaneous expenses.	\$3,082,771	\$880,687	\$280,660	250.0	213.8
Cost of materials used.	\$15,885,354	\$13,160,451	\$4,710,709	20.7	179.4
Value of products.	\$26,377,210	\$21,999,249	\$6,972,268	19.9	215.5
Fish.	\$25,424,390	\$20,117,517	(²)	26.4	.....
Other products.	\$952,820	\$1,881,732	(³)	49.4	.....

¹ Exclusive of the statistics of 8 establishments, engaged primarily in the manufacture of other products. These establishments packed fish to the value of \$274,403.

² Includes proprietors and firm members, with their salaries; number only reported in 1900 and 1905, but not included in this table.

³ Decrease.

⁴ Includes amounts reported as wages at previous censuses.

⁵ Not reported separately in 1890.

While the canning and preserving of fish had become of considerable importance before 1890, no accurate statistics of the industry appear prior to the census of that year. At the census of 1850 the fishing industry was classed as manufacturing, and at that time products valued at \$10,056,163 were reported for 1,407 establishments. In 1860 fisheries were again reported, at which time were shown 1,970 establishments with products valued at \$14,284,405. While the statistics of canning and preserving fish were probably included in the above figures there was no separate classification for this branch of the work. In 1870, under the head "fish, cured and packed," 75 establishments with products amounting to \$1,592,591 were reported. In 1880 there was no classification covering the canning and preserving of fish, the

reports for such establishments, if taken, being included under other classifications.

In 1890 the Census Office made the first separation of the three branches of the canning and preserving industry. At that time 110 establishments were reported as engaged in canning and preserving fish. The amount of capital invested was \$3,186,975, and the value of products \$6,972,268, for the production of which 5,020 wage-earners were employed, receiving in wages the sum of \$1,128,143. In 1900 the number of establishments had increased to 346, a gain of 214.5 per cent; the capital to \$19,454,222, a gain of 510.4 per cent; the average number of wage-earners to 13,355, a gain of 166.1 per cent; and the wages paid to \$4,207,414, a gain of 273 per cent. The value of products reached the sum of \$21,999,249, or 215.5 per cent more than in 1890.

From 1900 to 1905 the number of establishments increased from 346 to 373, or 7.8 per cent; capital, from \$19,454,222 to \$19,853,016, or 2 per cent; and value of products, from \$21,999,249 to \$26,377,210, a gain of 19.9 per cent. The average number of wage-earners decreased from 13,355 in 1900 to 6,959 in 1905, or 47.9 per cent, while the amount paid for wages dropped from \$4,207,414 to \$3,241,740, or 23 per cent. This decrease is due, as before indicated, to the difference in the methods employed at the two censuses of reporting contract labor. A large part of the work at fish canning establishments, particularly the salmon canneries, is under the contract system. The canner contracts with parties to furnish labor for packing the fish at an agreed sum per case, usually guaranteeing that a certain number of cases shall be packed during the season. In 1890 the returns for many of these establishments reported such employees as wage-earners, and the amount paid under such contract as the wages paid; while in 1905 this item was in all cases included under contract work which appears in the statistics under the head of miscellaneous expenses, which item shows an increase in 1905 over 1900 of \$2,202,084, or 250 per cent.

Table 17 presents, by states and territories, a comparative summary of the statistics for the canning and preserving of fish as returned at the censuses of 1900 and 1905.

TABLE 17.—CANNING AND PRESERVING, FISH—COMPARATIVE SUMMARY, BY STATES AND TERRITORIES: 1905 AND 1900.

STATE OR TERRITORY.	Census.	Number of establishments.	Capital.	WAGE-EARNERS AND WAGES.		Miscellaneous expenses.	Cost of materials used.	Value of products.
				Average number.	Wages.			
United States.....	1905	373	\$19,853,016	6,959	\$3,241,740	\$3,082,771	\$15,885,354	\$26,377,210
	1900	346	19,454,222	13,355	4,207,414	880,687	13,160,451	21,999,249
Alaska.....	1905	63	10,275,736	1,805	950,081	1,826,590	3,546,208	7,735,782
	1900	36	3,203,228	2,092	1,242,642	150,854	1,587,883	3,821,136
California.....	1905	13	464,330	195	81,516	25,907	483,447	788,438
	1900	19	691,285	376	158,888	23,370	449,718	866,432
Delaware ¹	1900	3	1,035			89	6,238	8,473
Illinois.....	1905	4	13,390	4	2,118	735	13,210	22,060
	1900	4	2,655	5	2,642	526	3,195	8,900
Louisiana.....	1905	3	331,971	147	48,623	74,407	157,306	410,259
	1900	6	186,689	236	44,710	6,408	67,583	144,379
Maine.....	1905	141	2,144,690	2,562	1,047,691	239,619	2,982,025	5,055,091
	1900	117	8,481,056	5,567	1,184,850	97,859	2,578,636	4,779,733
Maryland ¹	1900	3	65,600	442	63,500	11,020	154,605	248,100
Massachusetts.....	1905	50	1,976,171	1,031	438,482	191,703	3,431,955	4,598,444
	1900	61	1,734,227	1,328	475,123	118,058	3,471,112	4,619,362
Michigan.....	1905	4	18,350	16	7,540	1,014	78,413	94,150
	1900	4	6,800	19	7,961	1,318	52,949	65,077
Mississippi ²	1900	4	122,580	231	41,028	17,997	190,441	337,939
New York.....	1905	15	598,553	160	92,196	77,543	923,915	1,300,425
	1900	9	100,564	00	20,842	11,741	134,211	197,869
Oregon.....	1905	25	1,653,097	351	200,481	183,981	1,700,298	2,577,746
	1900	24	2,558,642	636	219,744	147,858	1,182,218	1,788,809
Virginia.....	1905	4	37,800	58	15,431	5,997	41,354	92,043
	1900	5	10,325	18	4,545	496	13,239	24,700
Washington.....	1905	36	2,036,327	543	314,739	430,474	2,125,825	3,187,149
	1900	36	2,222,726	2,190	711,214	285,353	3,086,865	4,831,038
Wisconsin.....	1905	7	112,001	30	13,076	11,458	218,716	259,324
	1900	6	4,590	3	1,010	1,005	28,142	35,792
All other states.....	³ 1905	8	190,600	57	29,766	13,343	182,682	256,299
	⁴ 1900	9	61,320	146	28,715	6,735	153,416	221,510

¹ Included in "all other states" in 1905.² None reported in 1905.³ Includes establishments distributed as follows: Delaware, 1; Florida, 1; Maryland, 2; Minnesota, 1; New Jersey, 2; Pennsylvania, 1.⁴ Includes establishments distributed as follows: Missouri, 1; New Hampshire, 1; New Jersey, 1; North Carolina, 1; Ohio, 2; Pennsylvania, 1; South Carolina, 1; Texas, 1.

Alaska produced the largest amount of canned fish during 1905, and made the greatest absolute increase in value of products. This item increased from \$3,821,136 in 1900 to \$7,735,782 in 1905, a gain of \$3,914,646, or 102.4 per cent. The number of establishments increased from 36 to 63, or 75 per cent, and the capital invested from \$3,203,228 to \$10,275,736, a gain of 220.8 per cent. Next in importance to Alaska in 1905 was the state of Maine, which reported products to the value of \$5,055,091, a gain over 1900 of \$275,358, or 5.8 per cent. The number of establishments in this state increased from 117 to 141, an increase of 20.5 per cent, but the total capital dropped from \$8,481,056 to \$2,144,690, a decrease of \$6,336,366, or 74.7 per cent. Two facts help to account for this decrease. The Seacoast Packing Company, one of the largest sardine packers in the state in 1900, went out of existence in 1902, and a number of their plants were not in operation during the last census year. While all the items of capital were less in 1905 than in 1900,

the greater part of the decrease was in "cash and sundries," under which is reported bills receivable, materials, products, and cash on hand, and other sundries. This division of capital shows a decrease of \$4,498,094, indicating the probability of a larger amount of stock on hand at the end of the business year in 1900 than in 1905; for, although the amount of sardines packed in the season of 1904 was the largest that had ever been known in the business, the condition of the market was such that the close of the year found the companies comparatively clear of goods.

The other leading states in the production of canned fish were, in the order named, Massachusetts, Washington, and Oregon. For Massachusetts products valued at \$4,598,444 were reported in 1905, a decrease from 1900 of \$20,918, or one-half of 1 per cent. The number of establishments decreased from 61 to 50, while the capital increased from \$1,734,227 to \$1,976,171. For Washington the value of products was \$3,187,149 in 1905, as compared with \$4,831,038

in 1900, a decrease of 34 per cent. The number of establishments reported at both censuses was 36, but the capital shows a decrease from \$2,222,726 in 1900 to \$2,036,327 in 1905. For Oregon products valued at \$2,577,746 were reported, an increase over 1900 of 44.1 per cent. As previously stated, there was a decrease in number of wage-earners and amount of wages paid in the fish canning industry in the leading states, due

to differences in methods of classifying the data at the two censuses.

In Table 18 the rank of the states and territories where fish canning establishments are located is shown according to number of establishments, capital, wage-earners, wages, and value of products. The statistics from which this table is constructed are contained in Tables 17 and 23.

TABLE 18.—CANNING AND PRESERVING, FISH—RANK OF STATES AND TERRITORIES, BY NUMBER OF ESTABLISHMENTS, CAPITAL, WAGE-EARNERS, WAGES, AND VALUE OF PRODUCTS: 1905 AND 1900.

STATE OR TERRITORY.	RANK ACCORDING TO—									
	Number of es- tablishments.		Capital.		Wage-earners and wages.				Value of products.	
					Average number.		Wages.			
	1905	1900	1905	1900	1905	1900	1905	1900	1905	1900
Alaska.....	2	3	1	2	2	3	2	1	1	4
Maine.....	1	1	2	1	1	1	1	2	2	2
Massachusetts.....	3	2	4	5	3	4	3	4	3	3
Washington.....	4	3	3	4	4	2	4	3	4	1
Oregon.....	5	5	5	3	5	5	5	5	5	5
New York.....	6	7	6	9	7	11	6	10	6	9
California.....	7	6	7	6	6	7	7	6	7	6
Louisiana.....	11	8	8	7	8	8	8	8	8	11
Wisconsin.....	8	8	9	17	10	19	11	19	9	13
Pennsylvania.....	14	17	11	23	11	(1)	9	(1)	10	23
Michigan.....	9	11	13	16	12	13	12	12	11	12
Virginia.....	9	10	12	12	9	14	10	14	12	16
New Jersey.....	12	17	10	15	13	17	13	15	13	15
Illinois.....	9	11	15	19	15	18	14	16	14	18
Minnesota.....	14	(1)	14	(1)	16	(1)	16	(1)	15	(1)
Maryland.....	12	14	16	10	14	6	15	7	16	8
Delaware.....	14	14	17	20	17	(1)	17	(1)	17	19
Florida.....	14	(1)	18	(1)	(1)	(1)	(1)	(1)	18	(1)
Mississippi.....	(1)	11	(1)	8	(1)	9	(1)	9	(1)	7
Missouri.....	(1)	17	(1)	11	(1)	16	(1)	13	(1)	10
North Carolina.....	(1)	17	(1)	13	(1)	10	(1)	11	(1)	14
Texas.....	(1)	17	(1)	14	(1)	15	(1)	17	(1)	17
South Carolina.....	(1)	17	(1)	18	(1)	12	(1)	18	(1)	20
New Hampshire.....	(1)	17	(1)	22	(1)	20	(1)	20	(1)	21
Ohio.....	(1)	16	(1)	21	(1)	(1)	(1)	(1)	(1)	22

¹ None reported.

Alaska advanced from fourth rank in 1900 to first in 1905 in the value of products reported, passing Washington, Maine, and Massachusetts. Maine, Massachusetts, and Oregon ranked second, third, and fifth, respectively, at both censuses. Washington dropped from first rank in 1900 to fourth in 1905.

Alaska advanced from third to second rank in number of establishments and number of wage-earners employed, and from second to first in capital invested, but dropped from first to second in amount of wages paid. In number of establishments and average number of wage-earners Maine was first at both censuses, but dropped from first to second place in capital and advanced from second to first in amount of wages paid. Massachusetts advanced from fourth to third place in wage-earners and wages, from fifth to fourth in capital, and dropped from second to third in number of establishments. In 1905 Washington was fourth in all these items except capital, in which it was third. Oregon

was fifth in all items in 1905, and New York sixth in all except average number of wage-earners, in which it ranked seventh.

In Tables 19, 20, 21, and 22 the statistics for canned salmon, canned sardines, canned shrimp, and salted cod are shown, by states and territories, in the order of production. Similar information can be obtained for each class of fish shown by referring to Table 23.

TABLE 19.—Quantity and value of canned salmon, by states and territories: 1905.

(Canning season of 1904.)

STATE OR TERRITORY.	Pounds.	Value.
United States.....	169,771,537	\$11,843,521
Alaska.....	122,012,981	7,618,579
Washington.....	26,601,429	2,431,605
Oregon.....	20,187,559	1,694,762
California.....	969,568	98,575

As shown by Table 19, Alaska produced more canned salmon than all the other states and territories combined. Of the 169,771,537 pounds reported for the United States, Alaska produced 122,012,981 pounds, or 71.9 per cent, and of the total value of products of \$11,843,521 Alaska produced \$7,618,579, or 64.3 per cent. Washington ranked second, with 26,601,429 pounds, valued at \$2,431,605, and Oregon third, with 20,187,559 pounds, valued at \$1,694,762. California was the only other state for which production of canned salmon was reported, there being 969,568 pounds, valued at \$98,575.

TABLE 20.—Quantity and value of canned sardines, by states: 1905.

(Canning season of 1904.)

STATE.	Pounds.	Value.
United States.....	87,224,524	\$4,380,498
Maine.....	86,218,610	4,291,324
California.....	860,000	78,000
New York.....	145,914	11,174

Practically all of the sardines canned in the United States during the census year were packed in the state of Maine. Of the total of 87,224,524 pounds for the United States, 86,218,610 pounds, or 98.8 per cent, were reported for Maine, the value being \$4,291,324 out of a total of \$4,380,498 for the country. The only other states for which sardine canning was reported were California and New York, the former state reporting 860,000 pounds, valued at \$78,000, and the latter 145,914 pounds, valued at \$11,174.

TABLE 21.—Quantity and value of canned shrimp, by states: 1905.

(Canning season of 1904.)

STATE.	Pounds.	Value.
United States.....	5,087,395	\$478,931
Louisiana.....	3,761,655	345,708
Mississippi.....	1,314,775	132,015
All other states.....	10,965	1,208

While there were but three establishments in the country the principal product of which was canned

shrimp, there were nine others for which shrimp was reported as a minor product. The pounds and value of such minor products are included in Table 21. It appears from the table that Louisiana and Mississippi are practically the only states in which canned shrimp is produced. The production in Louisiana was the largest, and amounted to 3,761,655 pounds, with a value of \$345,708. For Mississippi 1,314,775 pounds, valued at \$132,015, were reported. The amount canned in all the other states was but 10,965 pounds, valued at \$1,208.

TABLE 22.—Quantity and value of salted cod, by states: 1905.

(Season of 1904.)

STATE.	Pounds.	Value.
United States.....	48,757,819	\$3,013,320
Massachusetts.....	37,913,154	2,511,159
Maine.....	2,682,355	141,345
Washington.....	876,850	49,366
All other states.....	7,285,460	311,450

In pounds and value of salted cod Massachusetts was first, more than three times the combined output of the other states being produced there. The total for the United States was 48,757,819 pounds, valued at \$3,013,320; for Massachusetts 37,913,154 pounds, with a value of \$2,511,159, were reported, or 77.8 per cent of the total quantity, and 83.3 per cent of the total value for the country. For Maine 2,682,355 pounds, valued at \$141,345, were reported; and for Washington 876,850 pounds, having a value of \$49,366. For the other states only 49,460 pounds, with a value of \$4,090, were reported.

Table 23 shows the detailed statistics, by states and territories, for the industry of fish canning and preserving as returned at the census of 1905. As in the case of fruits and vegetables in Table 15, it has been found necessary to include in the group of "all other states" some states reporting three or more establishments to avoid disclosing operations of individual establishments.

TABLE 23.—CANNING AND PRESERVING, FISH—DETAILED SUMMARY, BY STATES AND TERRITORIES: 1905—Continued.

	United States.	Alaska.	Illinois.	Louisiana.	Maine.	Massachusetts.	Michigan.	New York.	Oregon.	Washington.	Wisconsin.	All other states.
Products:												
Aggregate value.....	\$26,377,210	\$7,735,782	\$22,060	\$410,259	\$5,055,091	\$4,598,444	\$94,150	\$1,300,425	\$2,577,746	\$3,187,149	\$259,324	\$1,136,780
Canned fish—												
Total pounds.....	264,236,435	122,012,981	.....	3,755,870	87,386,650	1,048,050	.....	407,896	20,187,559	26,601,429	40,600	2,795,400
Total value.....	\$16,861,094	\$7,618,579	.....	\$345,356	\$4,362,794	\$76,342	.....	\$37,826	\$1,694,762	\$2,431,605	\$4,855	\$288,975
Salmon—												
Pounds.....	169,771,537	122,012,981	.....	.....	.....	.....	.....	.....	20,187,559	26,601,429	.....	969,568
Value.....	\$11,843,521	\$7,618,579	.....	.....	.....	.....	.....	.....	\$1,694,762	\$2,431,605	.....	\$98,575
Sardines—												
Pounds.....	87,224,524	.....	.....	86,218,610	.....	.....	.....	145,914	.....	.....	.....	860,000
Value.....	\$4,380,498	.....	.....	\$1,291,324	.....	.....	.....	\$11,174	.....	.....	.....	\$78,000
Shrimp—												
Pounds.....	3,757,310	.....	3,755,870	.....	.....	.....	.....	1,440	.....	.....	.....	.....
Value.....	\$345,716	.....	\$345,356	.....	.....	.....	.....	\$360	.....	.....	.....	.....
Mackerel—												
Pounds.....	1,568,450	.....	.....	173,000	.....	802,050	.....	6,000	.....	.....	.....	587,400
Value.....	\$114,702	.....	.....	\$14,800	.....	\$66,042	.....	\$500	.....	.....	.....	\$33,360
Crabs—												
Pounds.....	225,432	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	225,432
Value.....	\$58,753	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	\$58,753
Clams—												
Pounds.....	943,512	.....	.....	935,040	.....	.....	.....	.....	.....	.....	.....	8,472
Value.....	\$54,729	.....	.....	\$53,670	.....	.....	.....	.....	.....	.....	.....	\$1,059
Other—												
Pounds.....	745,670	.....	.....	60,000	.....	246,000	.....	254,542	.....	.....	40,600	144,528
Value.....	\$63,175	.....	.....	\$3,000	.....	\$10,300	.....	\$25,792	.....	.....	\$4,855	\$19,228
Smoked fish—												
Total pounds.....	35,439,619	.....	187,300	.....	10,925,323	8,620,384	1,050,000	4,623,080	77,000	6,040,560	656,635	3,259,337
Total value.....	\$2,362,740	.....	\$22,060	.....	\$254,155	\$364,512	\$89,500	\$777,859	\$8,100	\$565,746	\$54,866	\$225,942
Herring—												
Pounds.....	19,192,252	.....	.....	9,821,243	.....	5,893,259	1,050,000	466,000	.....	290,000	.....	1,671,750
Value.....	\$579,852	.....	.....	\$2,06,879	.....	\$155,814	\$89,500	\$34,534	.....	\$8,200	.....	\$84,925
Salmon—												
Pounds.....	6,633,560	.....	39,000	.....	.....	.....	.....	1,880,600	75,000	4,189,560	.....	449,400
Value.....	\$791,184	.....	\$6,150	.....	.....	.....	.....	\$319,620	\$8,000	\$405,026	.....	\$52,388
Finna haddie—												
Pounds.....	3,014,160	.....	.....	650,100	.....	1,566,320	.....	198,740	.....	2,000	.....	597,000
Value.....	\$174,234	.....	.....	\$38,936	.....	\$86,315	.....	\$10,473	.....	\$250	.....	\$38,260
Halibut—												
Pounds.....	2,697,205	.....	.....	.....	.....	1,128,205	.....	.....	.....	1,550,000	.....	19,000
Value.....	\$274,118	.....	.....	.....	.....	\$120,068	.....	.....	.....	\$151,400	.....	\$2,650
Sturgeon—												
Pounds.....	1,591,800	.....	13,300	.....	.....	.....	.....	1,523,500	.....	5,000	.....	50,000
Value.....	\$345,760	.....	\$2,160	.....	.....	.....	.....	\$332,350	.....	\$750	.....	\$10,500
Other—												
Pounds.....	2,310,642	.....	135,000	.....	453,980	32,600	.....	554,240	2,000	4,000	656,635	472,187
Value.....	\$197,592	.....	\$13,750	.....	\$8,346	\$2,315	.....	\$80,882	\$100	\$120	\$54,866	\$37,219
Salted fish—												
Total pounds.....	115,218,145	4,479,690	.....	.....	12,561,238	69,733,584	.....	1,350,148	7,004,091	3,594,071	3,902,150	12,593,173
Total value.....	\$6,200,556	\$114,529	.....	.....	\$394,284	\$3,988,331	.....	\$80,657	\$689,484	\$172,018	\$193,593	\$567,660
Cod—												
Pounds.....	48,757,819	.....	.....	.....	2,682,355	37,913,154	.....	24,460	.....	876,850	.....	7,261,000
Value.....	\$3,013,320	.....	.....	.....	\$141,345	\$2,511,159	.....	\$2,215	.....	\$49,366	.....	\$309,235
Herring—												
Pounds.....	15,504,192	.....	.....	.....	1,853,899	9,131,560	.....	312,830	.....	750,000	188,570	2,767,333
Value.....	\$401,223	.....	.....	.....	\$41,557	\$217,824	.....	\$37,757	.....	\$26,000	\$5,385	\$72,700
Salmon—												
Pounds.....	14,123,741	4,357,439	.....	.....	.....	.....	.....	.....	6,999,091	1,243,221	.....	1,523,990
Value.....	\$997,900	\$112,084	.....	.....	.....	.....	.....	.....	\$689,284	\$72,232	.....	\$124,300
Mackerel—												
Pounds.....	8,326,566	.....	.....	.....	.....	8,221,566	.....	.....	.....	.....	.....	105,000
Value.....	\$678,326	.....	.....	.....	.....	\$668,326	.....	.....	.....	.....	.....	\$10,000
Haddock—												
Pounds.....	4,737,975	.....	.....	.....	611,171	4,101,804	.....	.....	.....	.....	.....	25,000
Value.....	\$213,394	.....	.....	.....	\$17,238	\$194,656	.....	.....	.....	.....	.....	\$1,500
Other—												
Pounds.....	23,767,852	122,251	.....	.....	7,413,813	10,365,500	.....	512,858	5,000	724,000	3,713,580	910,850
Value.....	\$896,393	\$2,445	.....	.....	\$194,144	\$396,366	.....	\$40,685	\$200	\$24,420	\$188,208	\$49,925
All other products.....	\$952,820	\$2,674	.....	\$64,903	\$43,858	\$169,259	\$4,650	\$404,083	\$185,400	\$17,780	\$0,010	\$54,203
Power:												
Number of establishments reporting.....	199	49	.....	2	53	17	3	9	19	33	2	12
Total horsepower.....	7,274	2,310	.....	35	1,712	232	8	102	1,084	1,359	38	394
Owned—												
Engines—												
Steam—												
Number.....	324	146	.....	3	56	.....	.....	.....	42	55	1	16
Horsepower.....	6,240	2,160	.....	35	1,604	110	.....	.....	734	1,274	25	298
Gas or gasoline—												
Number.....	35	8	.....	.....	13	.....	3	2	4	3	.....	2
Horsepower.....	362	84	.....	.....	80	.....	8	15	48	37	.....	90
Water wheels—												
Number.....	4	2	.....	.....	.....	.....	.....	.....	2	.....	.....	.....
Horsepower.....	261	61	.....	.....	.....	.....	.....	.....	200	.....	.....	.....
Water motors—												
Number.....	3	.....	.....	.....	.....	2	.....	.....	1	.....	.....	.....
Horsepower.....	33	.....	.....	.....	.....	28	.....	.....	5	.....	.....	.....
Electric motors—												
Number.....	13	1	.....	.....	4	.....	.....	.....	5	2	.....	1
Horsepower.....	92	5	.....	.....	28	.....	.....	.....	44	9	.....	6
Other power, horsepower.....	3	.....	.....	.....	.....	.....	3	.....	.....	.....	.....	.....
Rented—												
Electric motors—												
Number.....	38	.....	.....	.....	.....	16	.....	6	6	6	4	.....
Horsepower.....	233	.....	.....	.....	.....	91	.....	37	53	39	13	.....
Other kind, horsepower.....	50	.....	.....	.....	.....	.....	.....	50	.....	.....	.....	.....

CANNING AND PRESERVING, OYSTERS.

Table 24 is a comparative summary of the statistics for the establishments engaged in canning and preserving oysters, as reported at the censuses of 1900 and 1905, with percentages of increase during the period.

TABLE 24.—*Canning and preserving, oysters—comparative summary, with per cent of increase: 1905 and 1900.*¹

	CENSUS.		Per cent of increase.
	1905	1900	
Number of establishments.....	69	23	200.0
Capital.....	\$2,599,563	\$441,691	488.5
Salaried officials, clerks, etc.:			
Number.....	186	40	365.0
Salaries.....	\$120,867	\$31,831	279.7
Wage-earners, average number.....	3,291	1,335	146.5
Total wages.....	\$547,909	\$250,425	118.8
Men 16 years and over.....	906	643	40.9
Wages.....	\$282,857	\$171,915	64.5
Women 16 years and over.....	1,632	505	223.2
Wages.....	\$195,514	\$61,865	216.0
Children under 16 years.....	753	187	302.7
Wages.....	\$69,538	\$16,645	317.8
Miscellaneous expenses.....	\$232,594	\$23,607	885.3
Cost of materials used.....	\$2,590,872	\$837,380	209.4
Value of products.....	\$3,986,239	\$1,252,803	218.2
Canned oysters.....	\$3,415,186	\$965,215	253.8
Other products.....	\$571,053	\$287,588	98.6

¹ Exclusive of the statistics of establishments classified as "canning and preserving, fruits and vegetables" and "canning and preserving, fish." These establishments canned oysters in 1905 to the value of \$384,226 and in 1900 of \$1,049,585. Also exclusive in 1905 of the statistics of establishments engaged primarily in the manufacture of other products which canned oysters to the value of \$12,900.

As has been previously indicated, the difference in the methods employed at the census of 1900 and those employed at the present census was such that it was necessary to revise the figures for 1900 to make them comparable with those for 1905. According to the revised figures, in 1900 there were 23 establishments engaged primarily in the canning of oysters. These establishments showed an investment of capital amounting to \$441,691, employed 1,335 wage-earners, paid in wages the sum of \$250,425, and reported a product of \$1,252,803. In addition to this, oysters to the value of \$1,049,585 were canned by establishments the principal product of which was either fruits and vegetables or fish. As it is impossible to separate the capital, wage-earners, and wages for this part of the industry, the figures for such establishments are not included in the above table. In 1905 the number of establishments which reported canned oysters as their principal product had increased to 69, or three times the number reported in 1900. The capital invested increased to \$2,599,563, or 488.5 per cent; wage-earners increased to 3,291, or 146.5 per cent;

and wages to \$547,909, a gain of 118.8 per cent. The value of products increased to \$3,986,239, a gain of 218.2 per cent.

While the number of establishments increased 200 per cent, the capital invested shows an increase of 488.5 per cent, showing that the average capital per establishment has considerably increased since 1900. The percentage of increase for value of products was 218.2, and indicates a slightly larger average product than was reported in 1900. In 1905 oysters to the value of \$384,226 were reported as partial products of fruit and vegetable canning establishments, and are not included in the figures shown in Table 24.

In classifying the returns for the census of 1905, establishments engaged in the canning of clams were classified under "canning and preserving oysters." Returns received for 11 establishments from the state of Maine were thus classified, although there were no oysters canned in the state. There were also similar establishments in other states. In addition to this some of the establishments engaged in canning oysters as a major product also canned shrimp and other material, so that in considering the figures presented in Table 45 it should be borne in mind that they do not represent exclusively the canning and preserving of oysters.

As shown by this table, Mississippi led all the other states in value of oysters canned in 1905. Out of a total value of \$3,986,239 for the United States, this state produced \$1,502,497, increasing from \$569,000 in 1900. The other 3 leading states ranked according to value of products in 1905 were South Carolina, \$568,239; Louisiana, \$509,325; and Georgia, \$256,750. If the value of oysters canned by establishments given other classifications were taken into consideration, Maryland would have been the leading state in 1900, although there were no establishments reported in that year in which the principal product was canned oysters, and would have occupied the second place in 1905. Thus it appears that the greatest proportion of the oysters canned and preserved in the country are packed by the states bordering on the Atlantic from Maryland to South Carolina, and in Mississippi and Louisiana on the Gulf of Mexico.

Table 25 is a comparative summary, by states, of the statistics for establishments engaged in canning and preserving oysters, as reported at the censuses of 1900 and 1905.

TABLE 25.—CANNING AND PRESERVING, OYSTERS—COMPARATIVE SUMMARY, BY STATES: 1905 AND 1900.

STATE.	Census.	Number of establishments.	Capital.	WAGE-EARNERS AND WAGES.		Miscellaneous expenses.	Cost of materials used.	Value of products.
				Average number.	Wages.			
United States.....	1905 1900	69 23	\$2,599,563 441,691	3,291 1,335	\$547,909 250,425	\$232,594 23,607	\$2,590,872 837,380	\$3,986,239 1,252,803
California ¹	1905	4	493,170	45	31,830	36,633	123,006	227,702
Florida.....	1905 1900	7 6	87,252 78,895	177 148	24,671 32,392	5,145 5,881	79,252 48,029	134,092 100,543
Georgia ²	1905	5	109,245	568	54,305	7,760	150,633	256,750
Louisiana.....	1905 1900	6 3	388,469 64,250	282 97	55,099 33,915	21,726 3,123	361,891 109,205	509,325 165,458
Maine ¹	1905	11	24,714	120	25,359	2,104	74,175	125,541
Maryland ¹	1905	4	76,300	78	17,051	6,033	160,790	220,162
Mississippi.....	1905 1900	8 4	965,027 205,549	753 419	171,214 81,954	95,016 8,518	1,029,504 427,490	1,502,497 569,000
North Carolina ²	1905	5	93,400	142	23,070	19,325	128,705	176,773
South Carolina ²	1905	9	199,779	1,034	110,734	19,812	345,870	568,239
Washington.....	1905 1900	5 3	46,207 9,800	33 24	17,245 12,070	5,734 1,249	17,413 38,061	60,475 65,980
All other states.....	³ 1905 ⁴ 1900	5 7	116,000 83,197	59 647	17,331 90,094	13,306 4,836	119,633 214,595	204,683 351,822

¹None reported in 1900.²Included in "all other states" in 1900.³Includes establishments distributed as follows: Alabama, 1; New York, 1; Oregon, 2; Virginia, 1.⁴Includes establishments distributed as follows: Alabama, 1; Delaware, 1; Georgia, 1; Iowa, 1; North Carolina, 1; South Carolina, 1; Virginia, 1.

Table 26 shows the rank of the several states according to number of establishments and value of canned oysters. In the preparation of this table, all establishments at which oysters were canned have been included, whether the oysters were the principal or a minor product. In determining the value of products, all products except oysters have been omitted.

TABLE 26.—Canning and preserving, oysters—rank of states by number of establishments and value of canned oysters: 1905 and 1900.

STATE.	RANK ACCORDING TO—			
	Number of establishments.		Value of canned oysters.	
	1905	1900	1905	1900
Mississippi.....	3	2	1	2
Maryland.....	1	1	2	1
South Carolina.....	2	11	3	9
Louisiana.....	5	4	4	6
Georgia.....	8	6	5	7
California.....	8	(¹)	6	(¹)
North Carolina.....	7	6	7	3
Florida.....	4	2	8	4
Alabama.....	9	6	9	5
Oregon.....	9	10	10	8
New York.....	9	(¹)	11	(¹)
Washington.....	(¹)	4	(¹)	10
Iowa.....	(¹)	5	(¹)	11

¹None reported.

According to Table 26, Mississippi in 1905 was first in value of oysters canned and third in number of establishments, while in 1900 it was second in both. Maryland was first in both number of establishments and value of canned oysters in 1900, and first in num-

ber of establishments in 1905, but second in value of canned oysters. The other states prominent in the industry are: South Carolina, which was third in value of canned oysters in 1905 and ninth in 1900; Louisiana, which was fourth in 1905 and sixth in 1900; and Georgia which was fifth in 1905 and seventh in 1900.

Table 27 shows the quantity and value of canned oysters for 1905, by states, arranged in order of total production. In the preparation of this table the unit of pounds which has been used in other tables of canned oysters has been changed to cases. In making this reduction the different sizes of cans in which oysters are packed have been reduced to the standard of the number 2, or 2-pound can, and the unit of cases represents 24 number 2 cans. The figures in Table 27 also include the cases and value of oysters reported as minor products of establishments coming under other classifications.

TABLE 27.—Quantity and value of canned oysters, by states: 1905.

(Canning season of 1904.)

STATE.	Cases.	Value.
United States.....	1,234,355	\$3,799,412
Mississippi.....	457,339	1,340,942
South Carolina.....	192,733	529,511
Louisiana.....	148,452	507,373
Maryland.....	138,878	548,646
Georgia.....	99,881	256,750
California.....	73,640	222,617
North Carolina.....	52,629	144,273
Florida.....	37,532	125,600
All other states.....	33,271	123,700

Table 27 shows that Mississippi was first in number of cans of oysters packed, that state reporting 457,339 cases, with a value of \$1,340,942, out of a total for the United States of 1,234,355 cases, valued at \$3,799,412, or a little less than one-third of the total production of the country. South Carolina with 192,733 cases, valued at \$529,511, and Louisiana with 148,452 cases, valued at \$507,373, held second and third rank, respectively. Maryland was fourth in quantity, with 138,878 cases, and second in value, with \$548,646, indicating that the value of the Maryland oyster is greater than that of either of the two preceding states. And a study of the figures also reveals the fact that the value per case of Maryland oysters was greater than that of any other state. Next in order after Maryland

are Georgia with 99,881 cases, valued at \$256,750; California with 73,640 cases, valued at \$222,617; North Carolina with 52,629 cases, valued at \$144,273; and Florida with 37,532 cases, valued at \$125,600. The combined product of the other states amounted to 33,271 cases, valued at \$123,700.

Table 28 is a detailed statement, by states, of the statistics of the oyster canning and preserving industry as returned at the census of 1905. As in the case of fruits and vegetables in Table 15, it has been found necessary to include in the group of "all other states" some states reporting three or more establishments, to avoid disclosing operations of individual establishments.

TABLE 28.—CANNING AND PRESERVING, OYSTERS—DETAILED SUMMARY, BY STATES: 1905.

	United States.	Florida.	Georgia.	Louisiana.	Maine.	Maryland.	Mississippi.	South Carolina.	Washington.	All other states. ¹
Number of establishments.....	69	7	5	6	11	4	8	9	5	14
Capital:										
Total.....	\$2,599,563	\$87,252	\$109,245	\$388,469	\$24,714	\$76,300	\$965,027	\$199,779	\$46,207	\$702,570
Land.....	\$141,670	\$3,500	\$1,500	\$1,550	\$1,420	\$15,300	\$32,900	\$4,400	\$6,650	\$74,450
Buildings.....	\$426,239	\$18,300	\$13,250	\$97,255	\$7,660	\$12,000	\$118,474	\$25,000	\$3,500	\$130,806
Machinery, tools, and implements.....	\$419,683	\$17,300	\$36,700	\$100,571	\$7,476	\$8,000	\$138,504	\$51,182	\$5,500	\$54,450
Cash and sundries.....	\$1,611,971	\$48,152	\$57,795	\$189,093	\$8,158	\$41,000	\$675,149	\$119,197	\$30,557	\$442,870
Proprietors and firm members.....	93	8	5	7	10	7	13	11	11	21
Salaried officials, clerks, etc.:										
Total number.....	186	19	16	27	11	15	54	20	.....	24
Total salaries.....	\$120,867	\$7,996	\$10,445	\$15,500	\$3,333	\$8,815	\$30,038	\$13,540	.....	\$31,200
Officers of corporations—										
Number.....	19	.....	1	2	6	1	2	2	.....	5
Salaries.....	\$22,733	.....	\$600	\$3,500	\$1,343	\$180	\$900	\$4,200	.....	\$12,010
General superintendents, managers, clerks, etc.—										
Total number.....	167	19	15	25	5	14	52	18	.....	19
Total salaries.....	\$98,134	\$7,996	\$9,845	\$12,000	\$1,990	\$8,635	\$29,138	\$9,340	.....	\$19,190
Men—										
Number.....	158	19	15	24	5	13	48	17	.....	17
Salaries.....	\$94,164	\$7,996	\$9,845	\$11,800	\$1,990	\$8,135	\$27,118	\$8,840	.....	\$18,440
Women—										
Number.....	9	.....	.....	1	.....	1	4	1	.....	2
Salaries.....	\$3,970	.....	.....	\$200	.....	\$500	\$2,020	\$500	.....	\$750
Wage-earners, including pieceworkers, and total wages:										
Greatest number employed at any one time during the year.....	7,262	416	1,286	961	348	218	1,591	1,766	102	576
Least number employed at any one time during the year.....	5,101	339	679	368	283	94	1,230	1,588	56	454
Average number.....	3,291	177	568	282	120	78	753	1,034	33	248
Total wages.....	\$547,909	\$24,671	\$54,305	\$55,099	\$25,359	\$17,051	\$171,214	\$110,734	\$17,245	\$72,231
Men 16 years and over—										
Average number.....	906	35	66	76	44	73	245	196	12	159
Wages.....	\$282,857	\$10,579	\$22,315	\$22,424	\$14,554	\$16,517	\$85,767	\$38,756	\$9,471	\$62,474
Women 16 years and over—										
Average number.....	1,632	104	266	162	64	4	348	595	18	71
Wages.....	\$195,514	\$11,028	\$18,168	\$26,918	\$9,655	\$438	\$63,537	\$50,056	\$7,366	\$8,348
Children under 16 years—										
Average number.....	753	38	236	44	12	1	160	243	3	16
Wages.....	\$69,538	\$3,064	\$13,822	\$5,757	\$1,150	\$96	\$21,910	\$21,922	\$408	\$1,409
Average number of wage-earners, including pieceworkers, employed during each month:										
Men 16 years and over—										
January.....	1,517	79	130	151	.....	144	415	322	14	262
February.....	1,479	79	123	146	.....	105	406	325	26	269
March.....	1,403	73	106	90	11	101	400	329	30	263
April.....	1,202	62	105	76	51	53	395	330	30	100
May.....	288	.....	1	24	54	9	38	68	23	71
June.....	145	.....	.....	.....	27	9	18	3	19	69
July.....	93	.....	.....	.....	2	3	18	3	1	66
August.....	98	.....	.....	.....	.....	8	18	3	1	66
September.....	349	.....	8	.....	91	73	45	53	.....	79
October.....	1,177	28	98	87	106	109	293	264	.....	192
November.....	1,529	35	109	168	107	123	428	324	.....	235
December.....	1,592	64	112	170	77	139	466	328	.....	236
Women 16 years and over—										
January.....	2,662	222	469	300	.....	.....	563	914	23	171
February.....	2,616	217	473	290	.....	.....	501	924	39	172
March.....	2,610	215	472	240	40	.....	490	928	48	177
April.....	2,566	143	461	223	104	.....	580	940	47	68
May.....	756	.....	10	25	109	6	135	430	32	9
June.....	208	.....	.....	.....	41	6	100	25	27	9
July.....	38	.....	.....	.....	5	.....	.....	25	.....	8
August.....	41	.....	.....	.....	5	10	.....	25	.....	1
September.....	558	.....	12	.....	90	16	64	375	.....	1
October.....	2,091	102	407	233	143	10	413	720	.....	63
November.....	2,697	161	440	315	140	.....	640	916	.....	85
December.....	2,741	188	448	318	91	.....	690	918	.....	88
Children under 16 years—										
January.....	1,266	87	416	75	.....	.....	234	406	10	32
February.....	1,272	92	413	70	.....	.....	229	423	8	37
March.....	1,232	79	408	48	5	.....	223	423	6	40
April.....	1,201	59	405	48	8	.....	252	409	6	14
May.....	181	.....	.....	25	10	.....	59	83	.....	4
June.....	53	.....	.....	.....	.....	.....	39	8	.....	6
July.....	14	.....	.....	.....	.....	.....	.....	8	.....	6
August.....	12	.....	.....	.....	.....	.....	.....	8	.....	.....
September.....	160	.....	6	.....	32	6	58	58	.....	8
October.....	989	25	377	65	32	2	202	278	.....	20
November.....	1,292	48	400	98	32	.....	292	402	.....	25
December.....	1,364	66	407	99	25	.....	332	410	.....	.....
Miscellaneous expenses:										
Total.....	\$232,594	\$5,145	\$7,760	\$21,726	\$2,104	\$6,033	\$95,016	\$19,812	\$5,734	\$69,264
Rent of works.....	\$12,276	\$465	\$1,080	\$15	\$225	\$1,000	\$501	\$1,460	\$300	\$7,230
Taxes, not including internal revenue.....	\$9,683	\$233	\$1,186	\$1,348	\$191	\$552	\$3,250	\$1,794	\$214	\$915
Rent of offices, interest, insurance, and all other sundry expenses not hitherto included.....	\$200,582	\$4,447	\$5,494	\$20,363	\$1,688	\$4,481	\$91,265	\$16,558	\$5,220	\$51,066
Contract work.....	\$10,053	.....	.....	.....	.....	.....	.....	.....	.....	\$10,053
Materials used:										
Aggregate cost.....	\$2,590,872	\$79,252	\$150,633	\$361,891	\$74,175	\$160,790	\$1,029,504	\$345,870	\$17,413	\$371,344
Principal materials—										
Total cost.....	\$1,587,610	\$38,104	\$88,548	\$226,265	\$41,309	\$151,721	\$549,525	\$205,143	\$8,689	\$278,306
Purchased in raw state.....	\$1,587,310	\$38,004	\$88,548	\$226,265	\$41,209	\$151,721	\$549,525	\$205,143	\$8,689	\$278,206
Purchased in partially manufactured form.....	\$300	\$100	.....	.....	\$100	.....	.....	.....	.....	\$100
Fuel.....	\$47,155	\$989	\$840	\$6,815	\$1,345	\$410	\$25,220	\$5,480	\$849	\$5,207
Rent of power and heat.....	\$25	.....	.....	.....	.....	.....	.....	.....	.....	\$25
Mill supplies.....	\$4,702	\$135	\$20	\$699	\$39	\$5	\$2,980	\$468	\$56	\$300
All other materials.....	\$937,453	\$35,744	\$61,225	\$127,812	\$30,437	\$8,629	\$451,779	\$133,056	\$7,799	\$80,972
Freight.....	\$13,927	\$4,280	.....	\$300	\$1,045	\$25	.....	\$1,723	\$20	\$6,534

¹Includes establishments distributed as follows: Alabama, 1; California, 4; New York, 1; North Carolina, 5; Oregon, 2; Virginia, 1.

TABLE 28.—CANNING AND PRESERVING, OYSTERS—DETAILED SUMMARY, BY STATES: 1905—Continued.

	United States.	Florida.	Georgia.	Louisiana.	Maine.	Maryland.	Mississippi.	South Carolina.	Washington.	All other states.
Products:										
Aggregate value.....	\$3,986,239	\$134,092	\$256,750	\$509,325	\$125,541	\$220,162	\$1,502,497	\$568,239	\$60,475	\$609,158
Canned products—										
Total pounds.....	58,753,876	1,801,536	4,794,300	7,131,469	2,038,518	1,591,894	23,284,467	9,345,450	506,900	8,259,342
Total value.....	\$3,846,824	\$125,600	\$256,750	\$507,725	\$123,379	\$216,709	\$1,475,457	\$535,186	\$60,475	\$545,543
Oysters—										
Pounds.....	53,935,107	1,801,536	4,794,300	7,125,684	1,352,212	1,352,212	21,952,258	9,251,200	-----	7,657,917
Value.....	\$3,415,186	\$125,600	\$256,750	\$507,373	-----	\$164,420	\$1,340,942	\$529,511	-----	\$490,590
Clams—										
Pounds.....	2,886,695	-----	-----	-----	1,825,270	2,775	-----	50,000	481,900	526,750
Value.....	\$219,426	-----	-----	-----	\$110,826	\$830	-----	\$3,600	\$57,475	\$46,695
Shrimp—										
Pounds.....	1,330,085	-----	-----	5,785	-----	-----	1,314,775	6,250	-----	3,275
Value.....	\$133,215	-----	-----	\$352	-----	-----	\$132,015	\$500	-----	\$348
Crabs—										
Pounds.....	217,424	-----	-----	-----	-----	174,990	17,434	-----	25,000	-----
Value.....	\$44,199	-----	-----	-----	-----	\$38,699	\$2,500	-----	\$3,000	-----
Other—										
Pounds.....	384,565	-----	-----	-----	213,248	61,917	-----	38,000	-----	71,400
Value.....	\$34,798	-----	-----	-----	\$12,553	\$12,760	-----	\$1,575	-----	\$7,910
All other products.....	\$139,415	\$8,492	-----	\$1,600	\$2,162	\$3,453	\$27,040	\$33,053	-----	\$63,615
Power:										
Number of establishments reporting.....	33	2	-----	5	3	-----	5	4	3	8
Total horsepower.....	1,243	56	-----	105	60	-----	510	270	55	187
Owned—										
Engines—										
Steam—										
Number.....	47	2	-----	6	3	-----	19	11	4	7
Horsepower.....	1,189	56	-----	105	60	-----	497	270	17	184
Gas or gasoline—										
Number.....	3	-----	-----	-----	-----	-----	1	-----	2	-----
Horsepower.....	40	-----	-----	-----	-----	-----	2	-----	38	-----
Water motors—										
Number.....	1	-----	-----	-----	-----	-----	1	-----	-----	-----
Horsepower.....	1	-----	-----	-----	-----	-----	1	-----	-----	-----
Electric motors—										
Number.....	2	-----	-----	-----	-----	-----	1	-----	-----	1
Horsepower.....	11	-----	-----	-----	-----	-----	10	-----	-----	1
Rented—										
Electric motors—										
Number.....	1	-----	-----	-----	-----	-----	-----	-----	-----	1
Horsepower.....	2	-----	-----	-----	-----	-----	-----	-----	-----	2

HISTORICAL AND DESCRIPTIVE.

The seasons when fruits and vegetables can be obtained in their natural state are short, and therefore much time and study have been devoted to methods of preserving these products for use when out of season and in localities where they are not grown.

The first processes employed for this purpose were drying and the use of salt in pickling, and these are among the principal methods of preservation in use at the present time. Their utility is limited, however, and, as civilization advanced, a method was sought whereby fruits and vegetables could be preserved more nearly in a natural condition. During the early days of the last century a great deal of attention was given the subject in France on account of a reward of 12,000 francs offered by the French Government for a method of preserving food for use by the navy. The process of canning in hermetically sealed cans was finally discovered by M. Appert, of that country, and the first authentic information we have in regard to it is a work written by him and published in 1810 by authority of the French Government. There have been so many improvements on his methods that his book is now of little practical use to canners, and is of value principally as a bit of history. To him, however, we owe the discovery and clear exposition of the principles that underlie the process in this, one of the most impor-

tant of modern enterprises, and he may well be called the father of the canned goods industry.

It is a well established fact that the decomposition of food is due to the action of a living organism known as "ferment." Heating food to a temperature sufficient to kill all organisms present, and preventing the introduction of others by hermetically sealing the package, makes preservation for an indefinite period possible. It was upon this theory that Appert worked and made his successful experiments. When the germs of fermentation or putrefaction are killed by heat, the air must be excluded immediately, or others, which are present almost everywhere in the air, will enter the substance and again affect it. There are two ways of accomplishing this: The air may be excluded while the temperature is still high enough to kill the germs, or the substance may be again heated after the cans have been made air tight. As the cans can not readily be handled at high temperatures, the latter method is more preferable. It is, moreover, a great deal more reliable, and for these reasons is the one in use at all canning establishments.

It is also a fact that certain chemicals, known as antiseptics, among which are salicylic and boracic acids, benzoate of soda, and others, when added to food, will kill the organisms present, and thus preserve it from decay. There have been many arguments against the use of these chemicals, because of their

alleged harmful properties. They do not add anything to the nutritive value of the food and are not necessary for sterilization. The most approved practice is to sterilize the goods either directly or indirectly by the use of steam heat.

In Appert's description of his process, he says: "I chose glass as the matter most impenetrable by air, and have not ventured to experiment with vessels of any other substance." In 1810 Peter Durand took out a patent in England, venturing a step further than Appert, his patent covering "vessels made of glass, pottery, tin, or other metals or fit materials." This is the first mention of the use of tin as a package for hermetically sealed food, and to Durand is due the credit of first using the material for packages, thus making the general use of Appert's invention possible. Because of the greater cost of packages made of glass or pottery, the increased care necessary for their use in packing processes, and their impracticability for transportation on account of their weight and liability to breakage, the extraordinary growth of this industry is due in no small degree to the invention of tin cans.

Among the first to introduce canning into the United States was Thomas Kensett, who learned the art in England before his immigration to this country. In 1825 he and Ezra Daggert, with whom he was associated in business, obtained a patent from the United States Government on an improvement in the art of preserving. Owing to many adverse conditions the industry was of comparatively small importance until about 1850. During the next few years the development was very rapid and the variety of goods packed increased, and included fruits, vegetables, oysters, fish, and meats. Maryland soon became the chief center of the industry, but Maine, New York, and New Jersey were also prominent. California and the states of the middle West show a large growth in recent years, and the industry is fast extending to all parts of the country.

Changes in methods have kept pace with the growth of the industry, or rather have set the pace for it. While the underlying principles have remained the same, the use of improved machinery has done away with many laborious processes, cheapened the cost of production, increased the output, lessened the proportion of spoiled goods, and is largely responsible for the present magnitude of the business. In the eighties the growth of the industry was little less than phenomenal. New canning establishments sprang up in all parts of the country. The newer plants, with less skilled labor and more unscrupulous managers, endeavored to surpass the older established packers in the quantity of goods put up. This naturally resulted in the market becoming flooded with goods, a considerable portion of which were cheap and unwholesome. The public became dissatisfied with the goods put out, and the demand decreased, driving many of the plants out of business and making it necessary for the older

packers to put up nothing but first-class goods. The prejudice thus engendered in the public mind has been a difficult one to eradicate, and has worked inestimable harm to the industry.

Fruits and vegetables.—The first successful efforts in canning were made with fruits and vegetables, as the earlier processes were more applicable to these goods.

While we find that Kensett was packing canned goods in hermetically sealed cans as early as the year 1819, the business was really in an experimental stage, and did not develop into an industry of importance until several years afterwards. In the beginning efforts were directed to securing a process by which sugar corn could be canned for market, and Isaac Winslow was probably the first to successfully accomplish this. His experiments were made in 1842, and he applied for a patent on his process, which was finally granted in 1863. Tomatoes, called "love apples" by Appert in his work on canning, were first packed for commercial purposes in 1847, at which time Harrison W. Crosby commenced packing them at Jamesburg, N. J. Thus, during the decade from 1840 to 1850, the practicability of Appert's processes was established by American canners. The success of the pioneers of the industry in disposing of their goods attracted capital, giving the necessary impetus, and from that time the industry developed rapidly.

The fundamental principles first employed in canning processes have continued to the present time, and it is in the invention and use of labor saving devices that great advancement has been made. As an instance, at first corn was cut from the cob by hand and placed in the can, together with a small quantity of sirup, or water to which sugar and salt had been added. The tops were then soldered on by hand with the use of a tinner's copper, and the cans placed in the cooking kettle, where they were left in boiling water for from thirty to sixty minutes. A small hole was then made by pricking the can, and the heated air and vapor allowed to escape, after which the can was again sealed and returned to the kettle of boiling water, where it was necessary to keep it for several hours. This method of operation is now entirely obsolete. The continuous cutters of the present time are run by power, and cut the corn from a continuous stream of cobs as fast as the ears can be fed into the machine. The corn then goes through the silking machines, where a considerable part of the silk not removed in husking is separated. From the silker it passes to the steam cooker, where the sirup is added, and the mixture undergoes a cooking process. The cooker then takes the cans from a chute and automatically fills them with corn, the machine being so regulated that the same amount of corn goes into each can. The cans are then wiped and the caps put in place and passed on to the power capper. This power capper, which is a machine having 6 or 12 capping irons, solders the caps on the 6 or 12 cans as quickly as a man could cap one

can by the old hand process. Each cap has a small hole or vent in the center, left to permit the escape of steam during the capping process. This hole is then closed with a drop of solder and the cans inspected for leaks. They are then passed on to the steam process kettle, where they are heated to a degree and for a length of time sufficient to insure the destruction of all living germs. The degree of heat and the length of time necessary to accomplish this varies according to the kind of goods in process. Green corn requires the highest degree of heat for its preservation, and strawberries about the lowest, the amount of acid present having much to do with this difference. In the early days of the canning industry this processing was done in pans set on brick arches; these in time gave way to the steam boiler or open retorts. But the boiling point was the greatest heat to be obtained by such methods, and some kinds of canned goods required a higher temperature to insure their preservation. This led to the closed steam retorts of the present time, in which any desired temperature can be obtained. By the use of the closed retort corn is now subjected to a temperature of approximately 250° F., and requires only about an hour for processing, where it required from five to six hours by the old method.

In the canning of peas, also, the advance in the use of machinery is particularly noticeable. A few years ago peas were picked from the vines by hand, and were brought to the factory in the pods, where they were shelled by hand. The expense of picking the peas in the field and shelling them at the factory was enormous, and kept the price of canned peas at a high figure until the invention of the pea huller, a machine which was capable of shelling over a thousand bushels of peas in a day of ten hours. This machine was soon supplanted by another called the viner, which takes the peas from the vine and shells them at the same time. The practice at present is to mow the pea vines and carry them to the factory, where they are fed into the viner, which separates the peas from the vines much as a grain thrasher separates the grain from the straw.

The peas are then sent to the cleaners, where various mechanical devices are employed to remove dirt and pieces of leaves or pods. They are then taken to the graders, which are long cylinders perforated the entire length with holes the size of the different grades of peas, the small size first, the next larger, etc. These cylinders are set at an incline and kept constantly revolving. The peas first pass over the portion perforated by the smallest size holes, through which the small peas pass, the next larger ones passing through the next set of perforations, and in this way the various sizes or grades are separated. They are then sorted by girls who pick out imperfect and offcolored peas, pieces of leaves, etc., that may have passed through the cleaner. The peas are next put into small tanks of water, where they are cooked from four to six minutes, then rinsed in cold water and

poured into cans, which are placed on scales and weighed to insure uniformity in the quantity of peas they contain. The cans are then filled with sirup and passed into the exhaust box, where all air that may have been in the peas when they were put in the can is exhausted by the use of steam. The cans then pass to the capper and follow the same process described in the case of corn. All canned goods are subjected to practically the same process, the only difference in canning being the methods of preparation for the can and the different lengths of time or degree of temperature that each may require in the process kettle.

Fish.—While the canning of fish was carried on to some extent in the United States previous to 1843, the real commencement of the industry dates from that time, when the firm of Treat, Noble, & Halliday, of Eastport, Me., began the canning of lobsters and mackerel. This firm found a ready market for their products, and their success led others to engage in the industry. During the next twenty years canning establishments were started all along the coast of Maine, from which point the business spread to other parts of the country. The beginning of the industry on the Pacific coast was due largely to William Hume, who obtained his knowledge of the work in Maine, leaving that state for California in 1853. In 1864 he started the business in Sacramento, Cal., in partnership with his brother, George W. Hume, and with A. S. Hapgood, both likewise from New England, where they had acquired a knowledge of processes used in canning lobsters and oysters.

In the bulletin of the United States Fish Commission for 1885, Mr. Hume is quoted as follows: "To introduce our goods, I used to fill a basket with cans, take it on my arm, and starting out among the families of my acquaintance, give to each a can, explaining how the fish was put up, insisting that it was a valuable article of food, and inviting them to try it. That was twenty years ago. Now, canned salmon can be obtained in every market of the world. But that was the beginning of it." During a visit to Oregon in 1865, Mr. Hume saw the possibilities that the Columbia river possessed for the industry, and in 1868 was actively engaged in canning salmon on the banks of that river.

The process of canning fish is very similar to that employed for fruits and vegetables, therefore the methods used in salmon canning establishments are briefly described. It is said that fish should be out of the water twenty-four hours before packing to allow them to shrink, as when packed perfectly fresh so much juice is formed that in "blowing," after cooking, light weights are produced. As soon as received the salmon are placed in bins which are near the butcher's table where they are cleaned. A stream of water is kept playing over them while in the bins to remove the dirt and slime. They are then transferred

to the table where the butcher removes the head, fins, and viscera. The fish is then placed in a tank of water where it is washed and scraped and its tail is removed. It is then passed to another tank of water where it receives a second washing and scraping, and a final brushing with a whisk-like broom. When thoroughly clean, the fish are removed to large bins on either side of the cutting machine.

There is great variation at different canneries in all the processes, but one principle in cutting is universally observed—that is, to cut the fish transversely in sections the exact length of the can. This cutting is done by means of gang knives, by which the entire fish is cut into several pieces at one stroke. The pieces are then filled into the cans, most canneries using filling machines for the ordinary tall or 1-pound can; all fancy cans, such as “flats,” “elliptical,” “half pound,” etc., are filled by hand. After filling, the cans are inspected, and if for export trade, are carefully weighed so there may be no short weight. If they are not quite full, a small quantity of fish is added, a supply of small bits being kept on hand for this purpose. The tops are then put on and soldered, this process being done in most cases by machines specially constructed for the purpose. When the can emerges from the soldering machine it rolls down a trough and under several jets of water to cool. As it comes from the trough it is placed on a table where laborers seal by hand the central vent which has been left open to let the air escape, as the can becomes quite hot in the capping process and in the soldering machine. The cans are then placed in trays and lowered into wooden tanks filled with steam heated water to test for leaks. After this test the cans are placed in the steam retort for the first cooking. It is necessary not only to cook the flesh thoroughly, but also to cook the bones until they will crumble to pieces easily, for if this is not done, the contents of the can may spoil. The trays with the hot, steaming cans, bulged out at the ends by the pressure of the steam within, are then placed on tables where they are tested by the process known as “blowing” or “venting.” Men with small wooden mallets, which have on the broad face an awl-like point, tap the top of one can after another, making a small perforation in each. A fountain-like jet caused by the escaping steam at once appears, carrying some of the liquor with it. The vents, after blowing, are immediately soldered, and then the can is placed in a second retort for final cooking. The reason for two separate cooking operations is that, if the cans are kept in the first retort a sufficient length of time to complete the cooking, the pressure of the steam generated in the cans would ruin them. After being taken from the second retort, the cans are subjected to a lye bath to remove the grease and dirt, and then, when the lye has been washed off with fresh water, they are sent to the cooling room. After cooling, the cans are lacquered, labeled, and cased and are then ready for the market.¹

Next in importance to the salmon canning of Alaska and the Columbia river comes the sardine packing in the state of Maine. The Maine sardine is the young of the sea herring, which is very plentiful along the coast of that state. The process used in canning sardines differs considerably from that used for salmon. The fish is first fried in oil and then canned in the same substance, cottonseed oil being the kind most generally used in the Maine canneries. Sardines are also packed in mustard, tomato sauce, and other condiments.

Oysters.—Probably the first person to can oysters in this country was Thomas Kensett, who is known to have been engaged in this branch of the industry as early as 1822. Baltimore, Md., because of its close proximity to the oyster beds of Chesapeake bay, naturally became the center of the industry, and for many years more oysters were canned in Maryland than in any other state. During the last census year, however, the statistics for Maryland indicate a decline in the industry there, the bulk of the business being carried on by the more southern states.

Improvements of method in oyster canning have been as marked as in the other branches of the canning industry. One of the most important difficulties overcome was that found in opening or shucking the oyster. At first the oyster shells were opened by hand. The first improvement over this method was introduced in 1858 by Louis McMurtry, of Baltimore, who discovered that scalding the oyster in the shell caused it to open to a considerable degree, making it easier to remove the meat. Two years later this process was replaced by the steam box, which is generally used at the present time.

The canneries are usually located at the water's edge where they have their own wharves, alongside of which the oysters are brought by boat. From the wharf to the shucking room, small cars, about 5 or 6 feet in length, are run. These cars are filled on the wharf with baskets each containing about 3 pecks of oysters just as they are brought from the beds. The cars are then pushed into the steam chest, which is a rectangular box large enough to hold 2 or 3 cars at once. The box is air-tight and fitted with appliances for the admission of steam. The doors at the end are closed and the steam turned on for ten to fifteen minutes. The hot steam causes the shells to open somewhat, and the shuckers, to whom the oysters are next carried, are thus enabled to remove the meat from the shell very easily with a knife. After the oysters are shucked, they are washed and packed into cans, which are weighed to secure uniformity in the quantity of oysters in each can. The subsequent processes are practically the same as in canning fruits and vegetables. The canned oysters pass through the exhaust box and capping machines, being vented and returned to the process kettle, where they are heated to a degree sufficient to preserve them.

¹United States Fish Commission Bulletin for 1898, pages 26 to 31.

RICE, CLEANING AND POLISHING

RICE, CLEANING AND POLISHING.

By H. McK. FULGHAM.

At the census of 1905 reports were received from 74 establishments engaged in cleaning and polishing rice during the calendar year 1904. These establishments were located in 8 states. The statistics for 3 of these states—California, North Carolina, and Oregon—can not be published separately, however, without disclosing the operations of individual establishments;

therefore, in the tables showing statistics by states, the totals for these states are grouped under the heading "all other states."

Table 1 is a comparative summary of the statistics of rice cleaning and polishing as returned at the censuses from 1880 to 1905, with the per cent of increase or decrease for each census period.

TABLE 1.—COMPARATIVE SUMMARY, WITH PER CENT OF INCREASE: 1880 TO 1905.

	CENSUS.				PER CENT OF INCREASE.		
	1905 ¹	1900	1890	1880	1900 to 1905	1890 to 1900	1880 to 1890
Number of establishments.....	74	80	32	22	7.1	150.0	45.5
Capital.....	\$8,821,099	\$2,601,352	\$2,073,884	\$562,200	239.1	25.4	268.9
Salaried officials, clerks, etc., number.....	436	169	96	(⁴)	158.0	76.0	.....
Salaries.....	\$548,562	\$182,033	\$96,160	(⁴)	201.4	89.3	.....
Wage-earners, average number.....	1,492	651	647	516	129.2	0.6	25.4
Total wages.....	\$640,632	\$265,585	\$223,433	\$110,467	141.2	18.9	102.3
Men 16 years and over.....	1,487	639	630	376	132.7	1.4	67.6
Wages.....	\$639,993	\$262,042	\$221,360	(⁴)	144.2	18.4	.....
Women 16 years and over.....	1	.....	9	94	.....	.....	90.4
Wages.....	\$239	.....	\$1,323	(⁴)	.....	.....	.....
Children under 16 years.....	4	12	3	35	66.7	50.0	82.6
Wages.....	\$400	\$3,543	\$750	(⁴)	88.7	372.4	.....
Miscellaneous expenses.....	\$615,583	\$230,203	\$147,992	(⁵)	167.4	55.6	.....
Cost of materials used.....	\$13,315,065	\$7,575,522	\$5,601,206	\$2,666,497	75.8	35.2	110.1
Value of products.....	\$16,296,916	\$8,723,726	\$6,693,196	\$3,133,324	86.8	30.3	113.6

¹Exclusive of the statistics of 2 establishments cleaning rice, engaged primarily in flour and grist milling, that reported clean rice and rice by-products, valued at \$107,693.

²Decrease.

³Includes proprietors and firm members, with their salaries; number only reported in 1900 and 1905, but not included in this table.

⁴Not reported separately.

⁵Not reported.

The number of establishments increased from 22 in 1880, when rice cleaning and polishing was first reported, to 74 in 1905, an increase of 236.4 per cent; the capital, from \$562,200 to \$8,821,099, an increase of 1,469 per cent; and the value of products, from \$3,133,324 to \$16,296,916, an increase of 420.1 per cent. Because of the abandonment of a number of small custom mills periodically operated for cleaning rice for local use throughout the Southern states, there was a decrease from 80 establishments in 1900 to 74 in 1905. The capital invested increased \$6,219,747, or 239.1 per cent; the number of wage-

earners, 841, or 129.2 per cent; the wages, \$375,047, or 141.2 per cent; and the value of products, \$7,573,190, or 86.8 per cent.

With regard to the manner of obtaining rough rice for cleaning and polishing, the mills have been divided into three classes: Merchant mills, which purchase the product from the farmer as it comes from the field; custom mills, which accept the rough rice from the farmer to be cleaned on a toll basis; and merchant and custom mills, which both purchase and clean for toll.

Table 2 shows, by states, the number of mills engaged in merchant milling exclusively, the number

engaged in custom milling exclusively, and the number doing both merchant and custom milling, together with the value of toll received, as reported at the census of 1905.

TABLE 2.—Number of mills, by class, and value of toll received, by states: 1905.

STATE.	MILLS.				Value of toll received.
	Total.	Merchant.	Custom.	Merchant and custom.	
United States.....	74	12	31	31	\$1,580,337
Georgia.....	3		3		22,365
Louisiana.....	43	5	17	21	963,325
South Carolina.....	4		4		76,885
Texas.....	17	1		10	516,637
Washington.....	4	4			
All other states ¹	3	2	1		1,125

¹ Includes California, North Carolina, and Oregon.

TABLE 3.—ROUGH RICE MILLED AND RICE PRODUCTS, BY STATES: 1905.

	United States.	Georgia.	Louisiana.	South Carolina.	Texas.	Washington.	All other states. ¹
Number of establishments.....	74	3	43	4	17	4	3
Rough rice:							
Total—							
Pounds.....	999,727,650	11,684,475	635,010,885	28,552,860	316,170,405	788,985	7,520,040
Cost.....	\$12,631,132	\$135,154	\$8,494,483	\$481,401	\$3,339,534	\$31,580	\$148,980
Domestic—							
Pounds.....	990,473,625	11,684,475	635,010,885	28,552,860	311,895,405		3,330,000
Cost.....	\$12,471,402	\$135,154	\$8,494,483	\$481,401	\$3,294,534		\$65,830
Foreign—							
Pounds.....	9,254,025				4,275,000	788,985	4,190,040
Cost.....	\$159,730				\$45,000	\$31,580	\$83,150
Average consumption per establishment, pounds.....	13,509,833	3,894,825	14,767,695	7,138,215	18,598,259	197,246	2,506,680
Per cent of total pounds milled.....	100.0	1.2	63.5	2.8	31.6	0.1	0.8
Rice products, aggregate value.....	\$16,242,333	\$172,429	\$10,665,197	\$554,508	\$4,638,867	\$40,300	\$171,032
Clean rice:							
Total—							
Pounds.....	623,900,245	7,026,894	394,744,386	17,825,732	197,433,320	713,913	6,156,000
Value.....	\$15,357,133	\$161,324	\$10,110,144	\$527,686	\$4,352,058	\$40,155	\$165,766
Whole—							
Pounds.....	411,208,943	3,673,394	287,460,640	13,677,357	102,812,839	713,713	2,871,000
Value.....	\$12,077,124	\$110,912	\$8,520,090	\$447,721	\$2,851,807	\$40,153	\$106,441
Broken—							
Pounds.....	212,691,302	3,353,500	107,283,746	4,148,375	94,620,481	200	3,285,000
Value.....	\$3,280,009	\$50,412	\$1,590,054	\$79,905	\$1,500,251	72	\$59,325
Polish:							
Pounds.....	33,290,331	411,491	22,526,750	701,260	9,500,830		150,000
Value.....	\$267,647	\$3,146	\$178,608	\$6,915	\$77,573		\$1,400
Bran:							
Pounds.....	120,694,130	1,390,446	74,531,334	3,151,557	40,772,421	69,372	779,000
Value.....	\$501,193	\$5,729	\$303,886	\$18,460	\$169,647	\$145	\$3,326
Hulls and waste:							
Pounds.....	221,842,944	2,855,644	143,208,415	6,874,311	68,463,834	5,700	435,040
Value.....	\$116,360	\$2,230	\$72,559	\$1,447	\$39,584		\$540

¹ Includes establishments distributed as follows: California, 1; North Carolina, 1; Oregon, 1.

The rough rice milled consisted of 990,473,625 pounds of domestic rice, valued at \$12,471,402, and 9,254,025 pounds of foreign, imported from the Orient and Honduras and valued at \$159,730—a total of 999,727,650 pounds, valued at \$12,631,132. From this amount 623,900,245 pounds of clean rice, valued at \$15,357,133, and 375,827,405 pounds of by-products, valued at \$885,200, were obtained. The by-products consisted of 33,290,331 pounds of polish, valued at \$267,647; 120,694,130 pounds of bran, valued at \$501,193; and 221,842,944 pounds of hulls and waste, valued at \$116,360. The value of hulls and waste here given represents only the value of the product sold, as no account has been taken of that used for fuel at the mills.

The average quantity of rough rice milled per establishment in the United States during the year was

The number of merchant mills reported for the United States is 12; the number of custom mills, 31; and the number of mills engaged in both merchant and custom milling, 31. The last named class, while partaking of the nature of both the others in its relations to the rice planter, milled the larger part of its output on the toll basis, and, in reality, is made up mainly of custom mills.

The total toll receipts for the United States were \$1,580,337, an amount equal to about one-tenth the total value of cleaned rice and rice products for the year.

Table 3 shows by states, for 1905, the quantity and cost of the foreign and domestic rough rice milled, the average quantity milled per establishment, the percentage of the total milled in each state, and the kind, quantity, and value of the product.

13,509,833 pounds. The highest average, 18,598,259 pounds, was for Texas, and the lowest, 197,246 pounds, for Washington.

Of all the rice cleaned in the United States, the greatest proportion, 63.5 per cent, was milled in Louisiana, and the smallest proportion, one-tenth of 1 per cent, in Washington. Louisiana and Texas combined milled 95.1 per cent of the total.

The value of products given in this table does not include the value of "all other products," under which designation are comprised products other than rice and rice by-products, valued at \$54,583. The value of this group is shown in the general summary table.

Table 4 shows, by states, the percentage that each class of rice products formed of the total quantity and the total value in 1905.

TABLE 4.—RICE PRODUCTS—PER CENT DISTRIBUTION BY QUANTITY AND VALUE, BY STATES: 1905.

STATE.	CLEAN RICE.						POLISH.		BRAN.		HULLS AND WASTE.	
	Total.		Whole		Broken.							
	Quan- tity.	Value.	Quan- tity.	Value.	Quan- tity.	Value.	Quan- tity.	Value.	Quan- tity.	Value.	Quan- tity.	Value.
United States.....	62.4	94.6	41.1	74.4	21.3	20.2	3.3	1.6	12.1	3.1	22.2	0.7
Georgia.....	60.1	93.6	31.4	64.3	28.7	29.3	3.5	1.8	11.9	3.3	24.5	1.3
Louisiana.....	62.2	94.8	45.3	79.9	16.9	14.9	3.5	1.7	11.7	2.8	22.6	0.7
South Carolina.....	62.4	95.2	47.9	80.8	14.5	14.4	2.5	1.2	11.0	3.3	24.1	0.3
Texas.....	62.4	93.8	32.5	61.5	29.9	32.3	3.0	1.7	12.9	3.7	21.7	0.8
Washington.....	90.5	99.6	90.5	99.6	(1)	(1)	.....	.....	8.8	0.4	0.7	.....
All other states ²	81.9	96.9	38.2	62.2	43.7	34.7	2.0	0.8	10.3	2.0	5.8	0.3

¹ Less than one-tenth of 1 per cent.² Includes California, North Carolina, and Oregon.

For each of the several states the proportion of the yield and the proportion of the value of cleaned rice and each of the rice by-products varied but little from the corresponding proportion for the United States, except in the Pacific Coast states, where imported rice is received in a partially cleaned condition. This accounts for the large yield of clean rice and the small

yield of polish, bran, and hulls shown for Washington and under the heading "all other states," which includes California and Oregon.

Table 5 presents the exports of domestic rice, and of rice bran, meal, and polish, and the imports of rice, and of rice flour, rice meal, and broken rice for the years ending June 30, from 1891 to 1905.

TABLE 5.—EXPORTS AND IMPORTS OF RICE AND RICE PRODUCTS: 1891 TO 1905.¹

YEAR. ²	EXPORTS.						IMPORTS.					
	Total.		Rice.		Rice bran, meal, and polish.		Total.		Rice.		Rice flour, meal, and broken rice.	
	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.
1905.....	204,105,067	\$5,333,090	165,689,272	\$5,066,199	38,415,795	\$266,891	109,254,598	\$2,095,380	46,179,592	\$1,181,513	63,075,006	\$913,867
1904.....	97,105,073	2,757,997	70,363,728	2,557,734	26,741,345	200,263	154,263,645	3,075,091	75,363,068	1,870,948	78,900,577	1,204,143
1903.....	82,543,369	2,507,074	63,325,013	2,384,485	19,218,356	122,589	169,891,214	3,071,691	78,552,240	1,742,456	91,338,974	1,329,235
1902.....	80,112,024	2,060,782	51,135,786	1,832,772	28,976,238	228,010	157,999,494	2,942,268	76,015,376	1,611,557	81,984,118	1,330,711
1901.....	63,999,726	1,560,897	39,550,838	1,416,975	24,448,888	143,922	117,199,710	2,324,898	74,598,061	1,588,044	42,601,649	736,854
1900.....	41,066,417	667,387	12,947,009	500,364	28,119,408	167,023	116,679,891	2,279,036	93,648,451	1,904,915	23,031,440	374,121
1899.....	15,334,689	118,809	852,704	38,511	14,481,985	80,298	204,177,293	3,930,149	153,837,026	3,152,771	50,340,267	777,378
1898.....	6,200,987	62,999	637,146	27,501	5,563,841	35,498	190,285,315	3,746,833	129,810,630	2,793,111	60,474,685	953,722
1897.....	3,905,754	34,730	387,288	14,617	3,518,466	20,113	197,816,134	3,517,160	133,939,930	2,555,960	63,876,204	961,200
1896.....	15,031,554	93,754	1,346,876	14,117	13,684,678	79,637	146,724,607	2,185,579	78,190,334	1,274,574	68,534,273	911,005
1895.....	1,623,336	16,454	124,296	4,687	1,499,040	11,767	219,564,320	3,445,512	141,301,411	2,353,974	78,262,909	1,091,538
1894.....	10,766,249	112,139	763,425	19,884	10,002,824	92,255	142,161,817	2,374,835	86,810,536	1,540,992	55,351,281	833,843
1893.....	13,711,798	153,334	756,992	25,126	12,954,806	128,208	147,483,828	2,790,151	81,031,944	1,598,625	66,451,884	1,191,526
1892.....	10,256,796	89,340	(6)	(6)	10,256,796	89,340	148,103,688	3,030,883	85,112,164	1,933,447	62,991,524	1,097,436
1891.....	3,490,895	59,714	540,620	33,012	2,950,275	26,702	214,363,582	4,559,540	133,104,063	3,170,132	81,259,519	1,389,498

¹ "Commerce and Navigation of the United States," Bureau of Statistics, Department of Commerce and Labor.² Year ending June 30.³ Includes shipments to Porto Rico and Hawaii.⁴ Includes shipments received from Hawaii.⁵ Includes 896,000 pounds damaged.⁶ Rice included with rice bran, meal, and polish.

The total quantity and value of exports increased from 3,490,895 pounds, valued at \$59,714, in 1891, to 204,105,067 pounds, valued at \$5,333,090, in 1905. During the same period the imports decreased from 214,363,582 pounds, valued at \$4,559,540, to 109,254,598 pounds, valued at \$2,095,380—decreases of 49 per cent in quantity and 54 per cent in value. In 1891 the total quantity of exports equaled only 1.6 per cent of the total quantity of imports. The relation, however, changed to such an extent that in 1905 the quantity of exports equaled 186.8 per cent of the quantity of imports.

Prior to 1900 the exports of rice consisted principally of rice bran, meal, and polish, but since that year the value of the clean rice exported has greatly exceeded that of the by-products. This is due largely to the great increase in the production of rice in Louisiana and Texas, following the introduction of irrigation and the use of improved machinery in the harvesting and thrashing. The consequent saving in

the cost of production has made it possible for the United States to enter the rice market of the world on more nearly equal terms with countries employing cheaper labor. On the other hand, it will be noticed that the imports of clean rice decreased each year from 1900 to 1905, with the exception of the interval between 1902 and 1903, when there was a slight increase, and that since 1891 the general tendency has been to decrease. The imports of rice flour, rice meal, and broken rice have not decreased greatly since 1891, notwithstanding the great increase in home production. The constant growing demand for "brewers' rice" is probably the cause of this condition.

Tables 6 and 7 show, by countries, the exports and imports of rice and rice by-products for each of the five years from 1901 to 1905. The totals in these tables do not agree with those in Table 5, because the foreign exports and imports of rice at Porto Rico and Hawaii have usually been excluded from Table 5.

TABLE 6.—EXPORTS OF DOMESTIC RICE AND RICE PRODUCTS, BY COUNTRIES: YEARS ENDING JUNE 30, 1901 TO 1905.¹

COUNTRY.	1905		1904		1903		1902		1901	
	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.
Aggregate.....	204,105,067	\$5,333,090	97,105,073	\$2,757,997	82,543,369	\$2,507,074	80,112,024	\$2,060,782	63,999,726	\$1,560,897
Clean rice:										
Total.....	165,689,272	5,066,199	70,363,728	2,557,734	63,325,013	2,384,485	51,135,786	1,832,772	39,550,838	1,416,975
EUROPE.										
Austria-Hungary.....			1,002	49						
Azores, and Madeira Islands.....			700	35					200	10
Belgium.....	421,960	15,549	16,721	972			15,156	947		
Denmark.....	67,825	2,925								
France.....	10,844	543	39,611	2,222	30,241	2,146	41,972	2,804	11,899	782
Germany.....	7,071,701	250,836	2,021	122	2,826	151	66,959	1,656	283,513	13,408
Netherlands.....	10,761,280	372,047								
Sweden and Norway.....									1,650	109
United Kingdom.....	9,813,717	317,464	612,492	31,018	324,241	17,842	288,216	16,172	299,377	13,100
NORTH AMERICA.										
Bermuda.....	2,388	148	983	68			2,176	112	1,870	136
British Honduras.....	253,980	7,177	26,359	911	4,220	158	1,246	53	4,600	120
Dominion of Canada:										
Nova Scotia, New Brunswick,										
etc.....	300	18	130	5			345	19		
Quebec, Ontario, Manitoba, etc.....	532,950	14,785	194,371	7,039	43,837	2,008	5,505	297	17,809	901
British Columbia.....	10,668	323	16,320	625	5,760	240	960	53		
Newfoundland and Labrador.....	200	6							320	20
Central American states:										
Costa Rica.....	505,590	15,399	5,100	188	7,520	202			12,800	401
Guatemala.....	527,744		38,790	1,185	20,371	629	17,982	570	22,056	854
Honduras.....	533,090	15,416	100,330	3,675	34,367	1,109	14,949	631	24,451	784
Nicaragua.....	705,617	22,711	107,746	4,158	29,598	935	26,316	843	132,195	3,824
Panama.....	2,095,019	62,630	28,573	882						
Salvador.....	11,500	270								
Mexico.....	2,844,437	67,359	444,188	12,790	16,074	979	105,718	4,253	81,538	2,600
Miquelon, Langley, etc.....							1,900	72		
West Indies:										
British.....	1,438	70	1,061	59	2,480	134	2,618	125	1,260	63
Cuba.....	37,906,368	1,053,690	698,983	19,985	850	35	7,206	364	31,015	1,003
Dutch.....			452	18			235	14		
French.....			400	20			300	18	367	20
Haiti.....	4,374	238			100	5	800	45	1,267	78
Santo Domingo.....							2,040	107	448	26
SOUTH AMERICA.										
Brazil.....			3,960	195	1,000	50			1,600	70
Chile.....	1,000	50			500	13	1,914	62		
Colombia.....	244,091	7,844	11,653	635	1,703	68	6,407	287	8,907	417
Ecuador.....	41,800	878								
Guiana—French.....									2,156	68
Peru.....	3,000	137	5,082	241			2,000	110		
Venezuela.....	154,147	3,454					236	13		
ASIA.										
China—Russia.....			10,000	600						
East Indies—Dutch.....							180	5		
Hongkong.....	1,000	30	100	5			200	10		
Japan.....			4,500	180						
Russia—Asiatic.....	290,000	7,835	11,560	457	2,300	109				
OCEANIA.										
British Australasia.....	700	38	1,340	83	610	42			2,300	100
All other British Oceania.....	100	4	640	32	100	6				
French Oceania.....	6,500	146	200	9	200	10	1,500	65	85,460	2,727
German Oceania.....	15,637	654	50	2	2,837	152			20,000	595
Guam.....									28,800	489
Tonga, Samoa, and all other.....										
AFRICA.										
British Africa:										
West.....	25,000	1,000							100	7
South.....	1,000	50			357	25				
Liberia.....									1,000	45
Shipments to Hawaii.....	9,983,491	303,029	3,642,925	143,142	2,209,920	102,008	(²)	(²)	(²)	(²)
Shipments to Porto Rico.....	80,838,816	2,508,724	64,340,385	2,326,127	60,583,001	2,255,429	50,520,750	1,803,065	38,471,880	1,374,168
Rice bran, meal, and polish:										
Total.....	38,415,795	266,891	26,741,345	200,263	19,218,356	122,589	28,976,238	228,010	24,448,888	143,922
EUROPE.										
Belgium.....	874,750	6,784			20,000	120				
Denmark.....							750	10		
Germany.....	35,834,394	246,610	21,237,916	158,493	16,572,090	101,389	24,771,373	194,442	21,102,408	118,280
Netherlands.....	1,406,675	11,152	4,934,991	37,747	2,492,758	20,491	4,194,235	33,480	1,430,240	10,350
United Kingdom.....	211,890	1,630	560,873	3,955	99,568	400			1,879,000	15,100
NORTH AMERICA.										
British Honduras.....	141	1	3,120	24	3,940	24	9,830	73	34,240	170
Central American states:										
Costa Rica.....	187	2								
Honduras.....	3,166	25								
Nicaragua.....	5,092	39								
Mexico.....	3,500	35							1,000	8
West Indies—Cuba.....	76,000	613					50	5	2,000	14
SOUTH AMERICA.										
Venezuela.....			4,445	44						
AFRICA.										
British Africa—South.....					30,000	165				

¹ "Commerce and Navigation of the United States," Bureau of Statistics, Department of Commerce and Labor.² Not given.

TABLE 7.—IMPORTS OF RICE AND RICE PRODUCTS, BY COUNTRIES: YEARS ENDING JUNE 30, 1901 TO 1905.¹

COUNTRY.	1905		1904		1903		1902		1901	
	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.
Aggregate.....	109,254,598	\$2,095,380	154,263,645	\$3,075,091	169,891,214	\$3,071,691	157,999,494	\$2,942,268	117,199,710	\$2,324,898
Clean rice:										
Total.....	46,179,592	1,181,513	75,363,068	1,870,948	78,552,240	1,742,456	76,015,376	1,611,557	74,598,061	1,588,044
EUROPE.										
Austria-Hungary.....	360,000	4,913	2,288,130	32,366	4,051,178	58,522	1,502,400	22,583		
Denmark.....									55,115	1,037
France.....			22	5	3,307	116	30,000	883	224	7
Germany.....	466,333	9,765	4,103,696	87,004	7,692,179	159,327	7,931,891	190,494	10,324,218	216,681
Greece.....			1,286	56	1,095	44				
Italy.....	1,652,841	53,253	2,767,779	93,186	2,235,577	77,464	1,777,983	53,427	1,996,845	59,944
Netherlands.....	145,400	2,607	2,553,582	55,982	2,263,900	61,097	952,171	21,067	1,029,544	26,884
Spain.....	268,794	7,047	1,123,862	36,525	1,923,626	55,122	3,075,655	74,613		
Turkey in Europe.....	221	7								
United Kingdom.....	5,102,991	117,510	7,556,859	174,255	6,335,724	148,299	8,856,464	201,203	6,616,070	152,550
NORTH AMERICA.										
Dominion of Canada:										
Nova Scotia, New Brunswick, etc.	200	0	565	13	100	0	225	7		
Quebec, Ontario, Manitoba, etc.	31,594	2,680	16,613	1,654	18,429	1,654	2,415	71	517	17
British Columbia.....	30,650	1,223	3,398	140	258,772	7,209	221,275	5,480	64,245	1,539
Central American states:			13,242	392	30,955	305	9,867	173	18,621	372
Guatemala.....										
Honduras.....	2,500	63								
Mexico.....	315,921	8,802	937,384	25,109	1,924,826	54,625	1,438,738	53,768	759,673	20,311
West Indies:										
British.....			280	11						
Cuba.....	50,523	1,153	119,004	3,133	56,744	2,140	598	13	2,250	63
SOUTH AMERICA.										
Argentina.....					310	6				
Brazil.....					80	5				
Chile.....									232,030	4,600
Peru.....									150	4
ASIA.										
Chinese Empire.....	18,454,156	507,293	22,016,495	621,576	22,849,154	471,528	23,315,991	445,744	22,721,051	484,205
East Indies:										
British.....			100	2			11,685	168	2,718,084	50,860
Dutch.....					6,737	90				
Hongkong.....	3,342,161	73,186	4,042,610	81,593	5,034,986	89,390	4,196,076	73,929	5,153,636	102,581
Japan.....	12,668,790	298,153	27,722,106	655,497	23,629,631	545,292	22,351,342	452,587	22,905,788	466,339
Siam.....	515,230	9,431								
Turkey in Asia.....	204	7								
All other Asia.....			56,044	839						
Shipments from Hawaii.....	2,771,083	84,414	39,911	1,610	234,930	10,218	340,600	15,347		
Rice flour, meal, and broken rice:										
Total.....	63,075,006	913,867	78,900,577	1,204,143	91,338,974	1,329,235	81,984,118	1,330,711	42,601,649	736,854
EUROPE.										
Austria-Hungary.....	10,728,462	164,905	13,401,642	199,721	9,179,368	137,429	6,100,560	90,688	492,000	7,286
France.....			1,165	93	398	37		286	318	40
Germany.....	33,541,708	472,388	39,851,166	627,874	64,406,247	941,411	66,492,940	1,085,120	36,546,212	632,702
Italy.....	756,717	9,719								
Netherlands.....	2,768,410	43,424	5,585,329	90,051	6,591,912	99,148	728,000	11,292	224,000	3,772
Portugal.....			550	5						
United Kingdom.....	10,124,874	153,623	10,534,740	157,201	4,583,746	68,150	5,541,005	90,258	4,362,409	75,819
NORTH AMERICA.										
Dominion of Canada:										
Quebec, Ontario, Manitoba, etc.	1,318,770	13,172	3,341,520	33,971	3,449,283	37,198			750	11
British Columbia.....	506,052	9,539			1,337	16				
ASIA.										
Chinese Empire.....	427,724	5,954	498,183	7,377	94,455	1,330	141,786	2,030	285,143	4,835
East Indies:										
British.....	1,121,787	12,251	1,306,101	18,057	1,840,065	26,645	224,145	2,374	287,687	4,297
Hongkong.....	614,016	8,245	274,334	3,924	427,013	5,866	231,879	3,451	403,130	8,092
Japan.....	660,196	11,376	237,338	5,685	544,672	8,738	2,523,517	45,465		
Siam.....	506,070	9,263								
All other Asia.....			3,866,547	60,133	220,478	3,267				
Shipments from Hawaii.....			1,962	51						

¹ "Commerce and Navigation of the United States," Bureau of Statistics, Department of Commerce and Labor.

Of the quantity of clean rice exported during the year ending June 30, 1905, Germany, the Netherlands, and the United Kingdom received 16.7 per cent and Cuba and Porto Rico 71.7 per cent. Of the total quantity of the by-products, 93.3 per cent went to Germany. The large yield for that year, coupled with the low price existing in the United States, enabled

this country to compete with long established rice producing countries.

Table 8 shows the exports of domestic clean rice by customs districts, quinquennially, from 1885 to 1905. In this table only the exports to foreign countries are included, shipments to Porto Rico and Hawaii not being presented for 1905.

TABLE 8.—EXPORTS OF DOMESTIC CLEAN RICE, BY CUSTOMS DISTRICTS, QUINQUENNIALLY: YEARS ENDING JUNE 30, 1885 TO 1905.¹

CUSTOMS DISTRICT.	1905 ²		1900		1895		1890		1885	
	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.
Total.....	74,866,965	\$2,254,446	12,947,009	\$500,364	124,296	\$4,687	388,914	\$20,728	168,827	\$10,619
ATLANTIC COAST.										
Baltimore, Md.....			28,425	1,063	16,895	676	92,789	3,836	2,614	128
Bangor, Me.....	665	33	589	38						
Bath, Me.....			6,000	300						
Boston and Charlestown, Mass.....							974	65		
Brunswick, Ga.....	115	6								
Charleston, S. C.....	500	25	2,700	145			2,955	173	27,057	1,719
New London, Conn.....							600	30		
Newport News, Va.....	71,061	2,842								
New York, N. Y.....	3,126,039	108,036	5,100,633	168,143	3,283	141	223,895	13,823	100,306	6,661
Philadelphia, Pa.....	10,866	272					250	20		
Portland and Falmouth, Me.....	400	22								
Passamaquoddy, Me.....							125	10		
St. Johns, Fla.....	100	2								
Savannah, Ga.....	3,244	125	14,534	760						
GULF COAST.										
Galveston, Tex.....	14,120,873	536,869	155,200	3,134						
Key West, Fla.....	80	4	236	9	212	11	200	11		
Mobile, Ala.....	5,515,175	114,750	5,382	192			483	23		
New Orleans, La.....	48,328,167	1,397,921	662,406	24,662	97,288	3,516	53,771	1,999	19,738	923
Pearl River, Miss.....					1,063	38				
Pensacola, Fla.....	1,000	55								
MEXICAN BORDER.										
Arizona.....	73,208	4,533								
Brazos de Santiago, Tex.....	195,393	4,895	76,787	2,015			1,750	55		
Corpus Christi, Tex.....	844,165	15,332	1,165	46			2,200	157	1,117	90
Paso del Norte, Tex.....	640,481	16,112	26,642	2,108						
Saluria, Tex.....	513,364	15,529	42,529	898	665	48			5,876	340
PACIFIC COAST.										
Alaska.....	20,080	954	8,722	777						
Hawaii.....	3,100	104								
Puget Sound, Wash.....	3,448	132	15,550	486					2,485	135
San Diego, Cal.....							6,429	385		
San Francisco, Cal.....	882,936	22,077	6,792,085	295,199						
CANADIAN BORDER.										
Champlain, N. Y.....			2,616	130						
Detroit, Mich.....	262,800	5,549								
Huron, Mich.....	193,140	5,728	1,860	93						
Oswegatchie, N. Y.....			280	10	650	45				
Vermont, Vt.....	56,565	2,539	2,668	156			1,604	88	10,134	633
Minnesota, Minn.....										
Montana and Idaho.....					4,240	212				
Superior, Mich.....							889	53		

¹ "Commerce and Navigation of the United States," Bureau of Statistics, Department of Commerce and Labor.

² Not including 80,838,816 pounds, valued at \$2,508,724, shipped to Porto Rico, and 9,983,491 pounds, valued at \$303,029, shipped to Hawaii.

In 1905 New Orleans ranked first in the quantity and value of the rice exported; Galveston, second; Mobile, third, and New York, fourth. If the shipments to Hawaii and Porto Rico were included, this order would be changed and San Francisco would be third in rank and Mobile and New York fourth and fifth, respectively.

Since 1900 the prominence of several customs districts as rice exporting centers has changed. San Francisco and New York, which stood, respectively, first and second in 1900, were passed by New Orleans, Galveston, and Mobile.

Table 9 is a summary of rice cleaning and polishing for the Hawaiian Islands as reported at the census

of 1900, this summary being reproduced in the absence of later authoritative data.

TABLE 9.—Summary for Hawaii: 1900.

Number of establishments.....	41
Capital.....	\$381,625
Salaried officials, clerks, etc., number.....	18
Salaries.....	\$12,100
Wage-earners, average number.....	173
Total wages.....	\$49,124
Men 16 years and over.....	171
Wages.....	\$48,800
Children under 16 years.....	2
Wages.....	\$324
Miscellaneous expenses.....	\$23,329
Cost of materials used.....	\$481,925
Value of products, including custom work.....	\$664,300
Pounds of rough rice milled.....	22,089,250
Average number of pounds of rough rice milled per establishment.....	538,762
Pounds of clean rice obtained.....	15,001,020
Number of acres planted in rice in 1899 ¹	9,130
Clean rice produced, pounds ¹	33,442,400
Average production per acre, pounds ¹	3,663

¹As reported to the division of agriculture, Census Office.

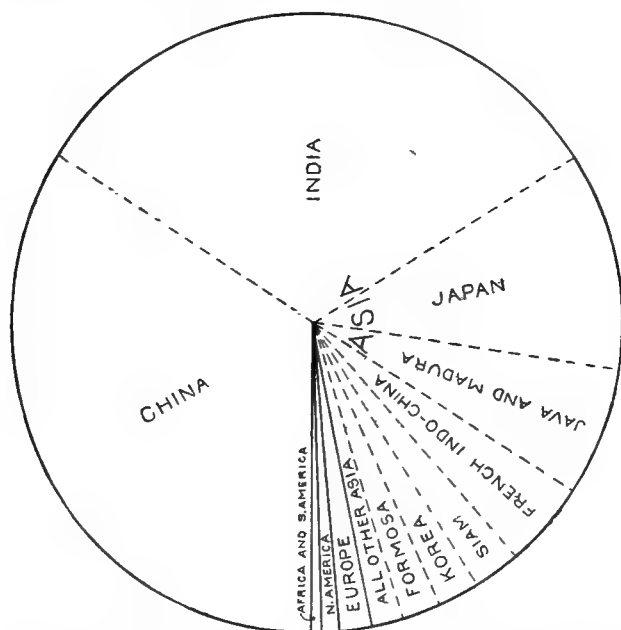
The total production for the Hawaiian Islands, expressed in terms of clean rice, was 33,442,400 pounds. The difference between this and the quantity of clean rice obtained was 18,441,380 pounds, a part of which was retained for seed, while the remainder was cleaned by primitive methods for domestic use.

The production of rice in the Philippine Islands in the crop year 1904-5 is estimated, upon the basis of an investigation made by the Bureau of Agriculture of those islands, to be 19,581,792 bushels, unhulled. This crop was 5,000,000 bushels less than the production of 1902-3, as given by the Philippine Census.

The area planted in rice in 1905 exceeded the area in 1902 by nearly 600,000 acres. The average yield of rice in the Philippine Islands in 1902-3 was 16.7 bushels per acre, while in the United States the average yield was 31.9 bushels in 1904 and 28.1 bushels in 1905.

The quantity of rice imported into the Philippine Islands during the year ending June 30, 1905, was 563,282,346 pounds, cleaned, of which all but one-tenth of 1 per cent came from the southern coast of Asia, chiefly from the French East Indies. The sum of these imports and the crop of 1904-5 is equivalent to about 1,200,000,000 pounds of cleaned rice, which, divided among 7,635,426 persons—the population of the islands in 1903—would give an average consumption of 157 pounds per capita, including seed.¹

Diagram—Production of rice in the world.



Of the world's production of rice for 1904, 66.9 per cent was supplied by India and China and 10.8 per cent by Japan. As indicated in the diagram, about 96 per cent was supplied by Asia.

The annual per capita consumption of rice is about 300 pounds for Japan and 350 pounds for some provinces of India. In the United States about 6 pounds per capita are consumed for edible purposes and 1½ pounds in manufacturing. The per capita consumption, based on the imports and exports during the year 1904, was 7.5 pounds for Germany, 10.8 pounds for France, 11 pounds for the United Kingdom, 15.6 pounds for Belgium, and 44.2 pounds for the Netherlands.

HISTORICAL AND DESCRIPTIVE.

Considered from the standpoint of its general use as a food, and its almost exclusive use by the people of many parts of the Orient, rice is indeed the staff of life. It is also consumed in great quantities in the countries of northern and eastern Africa, the West Indies, Central America, and the Malay archipelago, while the people of all other tropical and semitropical countries class it among their food necessities. In many sections of India and China and in Japan and other countries of Asia, where the merits of rice as a food have long been established, the people are so dependent upon it that a failure of the crop means great suffering to millions and starvation to many. The failure of the rice crop in the district of Behar, India, in 1873, where 15,000,000 people were dependent upon it for subsistence, necessitated the expenditure of \$32,000,000 by the British Government for food for the people of the stricken district. The dire consequences of a great shortage in the rice crop in some of the provinces of Japan were brought to the notice of the people of this country in 1906.

Rice was probably an article of food in Asia in pre-historic times. It is known that the Chinese have used it for nearly fifty centuries, and in India, too, its use antedates authentic history. It was introduced into Europe in the fifteenth century, when it was taken to Italy and Spain from northern Africa, where it had been planted by the Mohammedans in their migration from Asia Minor.

In 1647 Governor Berkeley, of Virginia, planted some seed rice received from England, but the experiment was not a success, and it was not until 1694 that rice growing was really established in this country. In that year the governor of South Carolina planted some rice given him by the master of a trading vessel which had put into Charleston on a cruise from Madagascar. The seed grew well, and in a few years rice planting on the lowlands of the coast became one of the chief industries of South Carolina. From this state the cultivation was extended to North Carolina and Georgia and later to Florida, Alabama, Mississippi, and Louisiana. The French who settled about New Orleans and the Acadians of southwestern Louisiana cultivated rice in a primitive way in the latter half of the eighteenth century, but the methods of growing were so crude that the industry did not become commercially important until after the Civil War.

The conditions resulting from the Civil War gave considerable stimulus to the planting of rice as a staple crop in Louisiana along the Mississippi river, and impoverished planters, who had formerly relied on other crops requiring great outlay of capital, began to grow rice as a means of quick financial relief. For several years the production was small, but it gradually increased. In the decade following 1870 the annual average reached seventy-one million pounds, and in 1880 more than fifty-one million pounds of clean rice

¹ "Crop Reporter," May, 1906, United States Department of Agriculture.

were marketed. A part of this was produced in the extreme eastern part of the now famous rice belt of southwestern Louisiana.

Since 1870 there has been a decline in the production in the Carolinas and Georgia as a result of unfavorable climatic conditions and the fact that improved machinery can not be used on the poorly drained fields.

In 1896 the problem of irrigating the barren prairies of southwestern Louisiana and southeastern Texas was solved at Crowley, in Acadia parish, and a new era in rice culture opened. By means of powerful pumps water is now lifted and forced along elevated ridges through great arterial systems of canals, from which the low-lying fields can be flooded at will. In many cases, also, irrigation is effected by means of artesian wells.

The adoption of modern machinery for cultivating and harvesting the grain quickly followed the introduction of the extensive irrigation systems, since the buoyant prairie soil, which can be easily and thoroughly drained, makes the use of machinery possible. Extensive areas can now be cultivated and harvested with a small expenditure of labor and with economical production and larger profits insured.

The development of the industry in the coastal prairie belt of Louisiana and Texas, where a few years ago land could be obtained at from \$1 to \$5 an acre, has been so great that the commercial crop for this district in 1904, as reported at the census of 1905, was more than 95 per cent of the whole crop for the United States.

In the Atlantic states the grain is cut by the sickle, cured, and thrashed in a stationary thrashing machine, which prepares the grain for milling. In Louisiana and Texas the rice is harvested and thrashed in the same manner as wheat in the Western states. As it comes from the thrasher it is packed in 4-bushel sacks.

The milling of rice consists in reducing the rough rice, or paddy, as it is sometimes called, to an edible state by the removal of the outer shell, which is commercially referred to as "hulls," and the inner cuticle, which is known as "bran," and by a finishing process that removes the "polish" from the kernel and gives it a pearly luster.

The polished rice is graded according to the perfection of the grains, which depends upon the variety of the rice, the care used in the harvesting and in thrashing, and the efficiency in milling. In 1905 the proportion of rice broken in milling was 23.2 per cent in South Carolina, 27.2 per cent in Louisiana, and 47.9 per cent in Texas.

In milling the crop of 1904, the breakage of the grains resulted in a loss of more than \$2,985,000 to the rice planters of the United States, if the broken rice be given the same value as whole or head rice.

But for the fact that the crop of 1904 sold at very low prices, the differential in the prices of the two grades—whole and broken—being small, the loss, possibly, would have been more than \$4,000,000.

In the Atlantic states rice is usually packed for market in barrels; in Louisiana and Texas it is automatically weighed and sacked in "pockets" containing 100 pounds. When exported the pocket is inclosed in another sack as a protection against leakage.

The usual quotations of rice are on the four grades—head, straights, screenings, and No. 2. "Head" is the whole grain; "straights," the better grade of broken grain; "screenings," the badly broken grain; and "No. 2," the lowest grade of broken grain.

In New Orleans the board of trade recognizes the following grades: Extra fancy, fancy, fair, ordinary, screenings, common, inferior, and No. 2. Extra fancy to fair, inclusive, are grades of whole rice and the others are grades of broken rice.

In the United States only head and the highest grade of broken rice are used as a table food, although the breaking of a grain into small pieces in no way diminishes its palatability or nutritive value. A large part of the lower grade is being shipped to Cuba and Porto Rico, where it successfully competes with the cheaper rice from other countries. Practically all of the lowest grade produced in this country is used in breweries, and, in addition, it is necessary to import quantities of such rice to meet their requirements.

In the economic development of the rice milling industry the by-products are being utilized more and more for useful purposes. As feed for horses and cattle, polish, or flour, which is worth from \$15 to \$20 per ton, has few equals because of the high percentage of protein it contains.

Bran, the principal by-product from the standpoint of value, is worth from \$7 to \$10 per ton and is used principally as a feed for cattle and horses. The pure bran is very generally mixed with hulls, which adulteration reduces its value proportionately, and is sold as rice bran. As a feed its value depends upon the percentage of pure bran contained in it, the hulls being practically worthless for feeding purposes.

In the cities and large manufacturing towns hulls are used for many purposes, such as in packing crockery and fragile wares for shipment, and as a substitute for sawdust in packing ice. They are very generally used as a fuel in the engines of the rice mills.

It is estimated that in the United States twenty-one million acres are available for rice planting. If this acreage were planted in rice and an average yield of 29 bushels per acre obtained, this country would take third rank among the rice producing countries of the world.

Table 10 gives, by states, the detailed statistics of the rice cleaning and polishing industry in the United States.

TABLE 10.—RICE, CLEANING AND POLISHING—DETAILED SUMMARY, BY STATES: 1905.

	United States.	Georgia.	Louisiana.	South Carolina.	Texas.	Washington.	All other states. ¹
Number of establishments.....	74	8	43	4	17	4	3
Capital:							
Total.....	\$8,821,099	\$146,954	\$6,138,228	\$317,394	\$2,138,723	\$15,250	\$64,550
Land.....	\$646,883	\$5,030	\$421,005	\$68,650	\$132,198		\$20,000
Buildings.....	\$1,739,052	\$15,100	\$1,141,232	\$89,000	\$485,720		\$8,000
Machinery, tools, and implements.....	\$2,340,019	\$37,190	\$1,666,692	\$57,000	\$558,887	\$4,200	\$16,050
Cash and sundries.....	\$4,095,145	\$89,634	\$2,909,299	\$102,744	\$961,918	\$11,050	\$20,500
Proprietors and firm members.....	33	1	12	3	6	10	1
Salaried officials, clerks, etc.:							
Total number.....	436	6	232	10	171		8
Total salaries.....	\$548,562	\$7,400	\$288,488	\$19,400	\$224,954		\$8,320
Officers of corporations—							
Number.....	70		40	4	24		2
Salaries.....	\$151,933		\$83,523	\$6,560	\$60,050		\$1,800
General superintendents, managers, clerks, etc.—							
Total number.....	366	6	102	15	147		6
Total salaries.....	\$396,629	\$7,400	\$204,965	\$12,840	\$164,904		\$6,520
Men—							
Number.....	356	6	186	15	144		5
Salaries.....	\$391,789	\$7,400	\$201,925	\$12,840	\$163,404		\$6,220
Women—							
Number.....	10		6		3		1
Salaries.....	\$4,840		\$3,040		\$1,500		\$300
Wage-earners, including pieceworkers, and total wages:							
Greatest number employed at any one time during the year.....	2,728	44	1,644	177	837	7	19
Least number employed at any one time during the year.....	1,180	11	801	35	319	7	7
Average number.....	1,492	28	923	92	432	6	11
Total wages.....	\$640,632	\$7,350	\$400,023	\$14,949	\$211,710	\$2,540	\$4,060
Men 16 years and over—							
Average number.....	1,487	28	923	88	431	6	11
Wages.....	\$639,993	\$7,350	\$400,023	\$14,549	\$211,471	\$2,540	\$4,060
Women 16 years and over—							
Average number.....	1				1		
Wages.....	\$239				\$239		
Children under 16 years—							
Average number.....	4			4			
Wages.....	\$400			\$100			
Average number of wage-earners, including pieceworkers, employed during each month:							
Men 16 years and over—							
January.....	1,938	35	1,168	72	644	5	14
February.....	1,842	35	1,148	87	549	7	16
March.....	1,650	15	1,009	87	517	5	17
April.....	1,137	16	667	58	370	7	19
May.....	872	16	502	68	267	5	14
June.....	607	22	351	65	160	7	2
July.....	498	21	342	35	91	7	2
August.....	837	22	630	26	152	5	2
September.....	1,770	33	1,149	116	457	7	8
October.....	2,324	48	1,432	162	665	5	12
November.....	2,295	36	1,396	159	683	7	14
December.....	2,074	37	1,282	121	617	6	12
Women 16 years and over—							
January.....	1				1		
February.....	1				1		
March.....							
April.....							
May.....							
June.....							
July.....							
August.....							
September.....	2				2		
October.....	3				3		
November.....	3				3		
December.....	2				2		
Children under 16 years—							
January.....							
February.....							
March.....							
April.....							
May.....							
June.....							
July.....							
August.....	9			9			
September.....	9			9			
October.....	10			10			
November.....	10			10			
December.....	10			10			
Miscellaneous expenses:							
Total.....	\$615,583	\$5,043	\$399,874	\$16,293	\$186,934	\$1,810	\$5,629
Rent of works.....	\$17,930	\$1,600	\$3,120		\$9,510	\$1,060	\$2,640
Taxes, not including internal revenue.....	\$50,481	\$1,430	\$33,717	\$5,791	\$9,039	\$170	\$334
Rent of offices, interest, insurance, and all other sundry expenses not hitherto included.....	\$538,082	\$2,013	\$361,447	\$10,502	\$160,885	\$580	\$2,655
Contract work.....	\$9,090		\$1,590		\$7,500		

¹ Includes establishments distributed as follows: California, 1; North Carolina, 1; Oregon, 1.

TABLE 10.—RICE, CLEANING AND POLISHING—DETAILED SUMMARY, BY STATES: 1905—Continued.

	United States.	Georgia.	Louisiana.	South Carolina.	Texas.	Washington.	All other states.
Materials used:							
Aggregate cost.....	\$13,315,065	\$144,648	\$8,973,084	\$504,657	\$3,508,110	\$33,671	\$150,895
Rough rice—							
Total pounds.....	999,727,650	11,684,475	635,010,885	28,552,860	316,170,405	788,985	7,520,040
Total cost.....	\$12,631,132	\$135,154	\$8,494,483	\$481,401	\$3,339,534	\$31,580	\$148,980
Domestic—							
Pounds.....	990,473,625	11,684,475	635,010,885	28,552,860	311,895,405	.....	3,330,000
Cost.....	\$12,471,402	\$135,154	\$8,494,483	\$481,401	\$3,294,534	.....	\$65,830
Foreign—							
Pounds.....	9,254,025	.....	.....	.....	4,275,000	788,985	4,190,040
Cost.....	\$159,730	.....	.....	.....	\$45,000	\$31,580	\$83,150
Fuel.....	\$116,365	\$1,040	\$76,639	\$4,498	\$33,278	\$310	\$600
Rent of power and heat.....	\$3,173	\$1,100	\$63	.....	.....	\$1,230	\$780
Mill supplies.....	\$88,909	\$1,454	\$67,147	\$2,430	\$16,831	\$512	\$535
All other materials.....	\$393,596	\$5,900	\$252,862	\$16,328	\$118,467	\$39	.....
Freight.....	\$81,890	.....	\$81,890	.....	.....	.....	.....
Products:							
Aggregate value.....	\$16,296,916	\$172,429	\$10,718,311	\$554,575	\$4,640,269	\$40,300	\$171,032
Clean rice—							
Total pounds.....	623,900,245	7,026,894	394,744,386	17,825,732	197,433,320	713,913	6,156,000
Total value.....	\$15,357,133	\$161,324	\$10,110,144	\$527,686	\$4,352,058	\$40,155	\$165,766
Whole—							
Pounds.....	411,208,943	3,673,394	287,460,640	13,677,357	102,812,839	713,713	2,871,000
Value.....	\$12,077,124	\$110,912	\$8,520,090	\$447,721	\$2,851,807	\$40,153	\$106,441
Broken—							
Pounds.....	212,691,302	3,353,500	107,283,746	4,148,375	94,620,481	200	3,285,000
Value.....	\$3,280,009	\$50,412	\$1,590,054	\$79,965	\$1,500,251	\$2	\$59,325
Polish—							
Pounds.....	33,290,331	411,491	22,526,750	701,260	9,500,830	.....	150,000
Value.....	\$267,647	\$3,146	\$178,608	\$6,915	\$77,578	.....	\$1,400
Bran—							
Pounds.....	120,694,130	1,390,446	74,531,334	3,151,557	40,772,421	69,372	779,000
Value.....	\$501,193	\$5,729	\$303,886	\$18,460	\$169,647	\$145	\$3,326
Hulls and waste—							
Pounds.....	221,842,944	2,855,644	143,208,415	6,874,311	68,463,834	5,700	435,040
Value.....	\$116,360	\$2,230	\$72,559	\$1,447	\$39,584	.....	\$540
All other products.....	\$54,583	.....	\$53,114	\$67	\$1,402	.....	.....
Power:							
Number of establishments reporting.....	74	3	43	4	17	4	3
Total horsepower.....	16,251	350	10,407	707	4,615	27	145
Owned—							
Engines—							
Steam—							
Number.....	106	2	68	14	21	.....	1
Horsepower.....	15,774	145	10,333	707	4,509	.....	80
Electric motors—							
Number.....	18	5	4	.....	9	.....	.....
Horsepower.....	385	205	74	.....	106	.....	.....
Rented—							
Electric motors—							
Number.....	6	.....	.....	.....	.....	4	2
Horsepower.....	92	.....	.....	.....	.....	27	65

BEET SUGAR

BEET SUGAR.

By ZACH C. ELKIN.

The manufacture of sugar from beets, while a comparatively new industry in the United States, has been progressing at such a rapid rate within the past few years that not many people, besides those actively engaged in the growing of sugar beets or the manufacture of sugar therefrom, realize the extent to which the industry has increased in all its branches.

Table 1 is a comparative summary of the statistics for the manufacture of beet sugar as reported at the censuses of 1880, 1900, and 1905, with the percentages of increase from 1900 to 1905.

TABLE 1.—Comparative summary, 1905, 1900, and 1880, with per cent of increase from 1900 to 1905.

	CENSUS. ¹			Per cent of increase, 1900 to 1905.
	1905	1900	1880	
Number of establishments.....	51	30	4	70.0
Capital.....	\$55,923,459	\$20,141,719	\$365,000	177.6
Salaries.....	763	350	(²)	118.0
Wage-earners, average number.....	3,963	1,970	350	181.7
Total wages.....	\$2,486,702	\$1,092,207	\$62,271	127.7
Men 16 years and over.....	3,928	1,951	350	101.2
Wages.....	\$2,472,032	\$1,085,218	\$62,271	127.8
Women 16 years and over.....	10	4	.....	150.0
Wages.....	\$5,096	\$1,685	.....	202.4
Children under 16 years.....	25	15	.....	66.7
Wages.....	\$9,574	\$5,304	.....	80.5
Miscellaneous expenses.....	\$1,999,555	\$441,384	(³)	353.0
Cost of materials used.....	\$14,486,876	\$4,803,796	\$186,128	201.6
Value of products.....	\$24,393,794	\$7,323,857	\$282,572	233.1

¹ The statistics for 1890 are not shown, since only 2 establishments were reported, and they were not tabulated separately.

² Excludes 1 idle establishment reported in 1900.

³ Not reported separately.

⁴ Not reported.

Although the manufacture of beet sugar in the United States has been carried on continuously since 1870, it has been within the past decade only that the industry has shown indications of really being past the experimental stage. In 1879, 4 factories were in operation, as shown by the census of 1880. Only 2 establishments were reported at the census of 1890, and as these were not tabulated separately no comparison can be made.

From unofficial sources it appears that up to 1898 the greatest number of establishments in operation was 9, but according to the Census reports the number had increased to 30 by 1900 and to 51 by 1905. The industry has had its greatest period of growth from 1898 to the present time.

The capital invested in the beet sugar industry in 1880 was only \$365,000; by 1900 the amount had

increased to \$20,141,719; and in 1905 it was \$55,923,459. At the last census of manufactures there were 49 establishments that individually reported a capital greater than the total capital shown for the 4 establishments in operation in 1880. The value of products, which amounted to \$282,572 in 1880, had increased to \$7,323,857 by 1900 and by 1905 had reached the sum of \$24,393,794.

While the wage-earners in this industry were paid only \$62,271 in 1880, they received \$1,092,207 in 1900 and \$2,486,702 in 1905, in addition to which over \$11,000,000 was distributed among the farmers in the beet raising sections in payment for beets, and nearly \$2,000,000 was paid for limestone, sulphur, coke, and fuel. Most of this amount went to the people of the communities adjacent to the factories.

At the census of 1905 compared with that of 1900 (which covered the sugar campaign of 1899-1900) the number of establishments increased 70 per cent; the capital invested, 177.6 per cent; the total wages paid, 127.7 per cent; the cost of materials, 201.6 per cent; and the value of products, 233.1 per cent.

Of the 30 establishments reported at the census of 1900, 29 were controlled by incorporated companies and 1 by an individual, whereas all of the 51 plants shown by the returns for the census of 1905 were owned by corporations.

Table 2 is a statement of the number and nominal daily capacity of establishments for 1900 and 1905, by states.

TABLE 2.—Number and nominal daily capacity of establishments, by states: 1905 and 1900.

STATE.	1905 ¹		1900	
	Number of establishments.	Daily capacity (tons of beets).	Number of establishments.	Daily capacity (tons of beets).
United States.....	51	35,900	31	19,110
California.....	5	7,300	28	9,900
Colorado.....	9	6,350	1	350
Idaho.....	3	1,800	.....	.....
Illinois.....	.....	.....	.....	700
Michigan.....	19	12,550	9	4,100
Minnesota.....	1	400	1	400
Nebraska.....	3	1,200	3	1,260
New Mexico.....	.....	.....	1	200
New York.....	1	600	2	400
Ohio.....	1	400	.....	.....
Oregon.....	1	350	.....	350
Utah.....	4	2,850	3	1,100
Washington.....	1	400	1	350
Wisconsin.....	3	1,700	.....	.....

¹ Willett & Gray's Weekly Statistical Sugar Trade Journal.

² Includes 1 idle establishment.

In order to avoid disclosing the operations of individual establishments, in all tables showing a comparison by states for the census years 1900 and 1905 the statistics for the factories of certain states are combined under the heading "all other states." The establishments so grouped for 1900 were distributed as follows: Colorado, 1; Illinois, 1; Minnesota, 1; Nebraska, 3; New Mexico, 1; New York, 2; Oregon, 1; Utah, 3; Washington, 1. Moreover, for the purpose of pre-

serving the basis for comparison, it has been necessary to include under this head for 1905 some states for which the statistics might otherwise be given. The establishments thus shown were distributed as follows: Colorado, 9; Idaho, 3; Minnesota, 1; Nebraska, 3; New York, 1; Ohio, 1; Oregon, 1; Utah, 4; Washington, 1; Wisconsin, 3.

Table 3 is a comparative summary of the industry by states for the censuses of 1900 and 1905.

TABLE 3.—COMPARATIVE SUMMARY, BY STATES: 1905 AND 1900.

	UNITED STATES.			CALIFORNIA.			MICHIGAN.			ALL OTHER STATES. ¹		
	1905	1900	Per cent of increase.	1905	1900	Per cent of increase.	1905	1900	Per cent of increase.	1905	1900	Per cent of increase.
Number of establishments.....	51	30	70.0	5	7	*28.6	19	9	111.1	27	14	92.9
Capital.....	\$55,923,459	\$20,141,719	177.6	\$10,672,786	\$9,322,980	14.5	\$12,989,630	\$4,013,743	223.6	\$32,261,043	\$6,804,996	374.1
Salaried officials, clerks, etc.:												
Number.....	763	350	118.0	90	122	*26.2	269	118	128.0	404	110	267.3
Salaries.....	\$1,004,636	\$356,675	181.7	\$149,030	\$117,880	26.4	\$293,500	\$101,693	188.6	\$562,106	\$137,102	310.0
Wage-earners:												
Average number.....	3,963	1,970	101.2	614	909	*32.5	1,211	473	156.0	2,138	588	263.6
Total wages.....	\$2,486,702	\$1,092,207	127.7	\$429,420	\$480,072	*10.6	\$581,074	\$216,704	168.1	\$1,476,208	\$395,431	273.3
Miscellaneous expenses...	\$1,999,555	\$441,384	353.0	\$305,410	\$159,482	91.5	\$706,628	\$77,262	814.6	\$987,517	\$204,640	382.6
Cost of materials used...	\$14,486,876	\$4,803,796	201.6	\$2,463,829	\$2,243,580	9.8	\$3,761,473	\$1,109,903	238.9	\$8,261,574	\$1,450,313	469.6
Value of products.....	\$24,393,794	\$7,323,857	233.1	\$4,415,172	\$3,499,996	26.1	\$5,378,004	\$1,602,266	235.6	\$14,600,618	\$2,221,595	557.2

¹ In 1905 includes establishments distributed as follows: Colorado, 9; Idaho, 3; Minnesota, 1; Nebraska, 3; New York, 1; Ohio, 1; Oregon, 1; Utah, 4; Washington, 1; Wisconsin, 3. In 1900 includes Colorado, 1; Illinois, 1; Minnesota, 1; Nebraska, 3; New Mexico, 1; New York, 2; Oregon, 1; Utah, 3; Washington, 1.

* Decrease.

As only one of the states reporting beet sugar manufacturing at the census of 1880 has been included in subsequent censuses, and no separate tabulation was made for the two factories reported at the census of 1890, it is impracticable to show the statistics for those censuses by states. If it were possible to show the figures for the industry for each census since 1880, when it was first reported, some remarkable increases would be revealed. As the greatest growth has occurred since 1898, the comparison given affords a good idea of the increase.

In 1900 beet sugar was manufactured in 30 factories distributed over 11 states, while in 1905 there were 51 factories in 12 states. Two states, Illinois and New Mexico, with 1 establishment each in 1900, had no factories in operation in the year covered by the census of 1905, while Idaho and Wisconsin, with 3 establishments each, and Ohio, with 1, were reported at the present census and not in 1900.

The greatest increase in number of establishments has occurred in Michigan, the gain being from 9 in

1900 to 19 in 1905. For this state the percentages of increase, as shown in Table 3, range from 111.1 for number of establishments to 814.6 for miscellaneous expenses. Considering the large amounts paid by factories for taxes, interest, repairs on plants, and the expenses incident to field operations, the increase in miscellaneous expenses for this and other states is not out of proportion to the growth of the other items shown in the table.

In California there was a decrease from 7 factories at the census of 1900 to 5 at that of 1905; this decrease in the number of factories reporting is due to the fact that 2 establishments that were reported in operation in 1900 were idle at the time of the present census.

Other decreases for the state occurred in the number of salaried officials, clerks, etc., and in the average number of wage-earners and total wages. Notwithstanding these decreases, increases are shown for the amount of capital invested, salaries, miscellaneous expenses, cost of materials used, and value of products.

Table 4 presents statistics for the states arranged according to rank, by value of products, for 1905.

TABLE 4.—SUMMARY FOR STATES RANKED BY VALUE OF PRODUCTS: 1905.

	United States.	Colorado.	Michigan.	California.	Wisconsin. ¹	All other states. ²
Rank by value of products.....		1	2	3	6	15
Number of establishments.....	51	9	19	5	3	15
Capital.....	\$55,923,459	\$15,639,588	\$12,989,630	\$10,672,786	\$2,171,698	\$14,449,757
Salaried officials:						
Number.....	763	96	269	00	47	261
Salaries.....	\$1,004,636	\$219,318	\$293,500	\$149,030	\$51,500	\$291,288
Wage-earners:						
Average number.....	3,963	1,048	1,211	614	168	922
Wages.....	\$2,486,702	\$792,916	\$581,074	\$429,420	\$96,882	\$586,410
Miscellaneous expenses.....	\$1,999,555	\$459,880	\$706,628	\$305,410	\$39,792	\$487,845
Materials used, total cost.....	\$14,486,876	\$3,892,405	\$3,761,473	\$2,463,829	\$585,376	\$3,783,793
Sugar beets:						
Tons.....	2,175,417	561,266	535,508	405,865	85,015	587,763
Cost.....	\$11,345,785	\$2,904,250	\$2,956,801	\$1,918,240	\$455,812	\$3,050,682
All other materials.....	\$3,141,091	\$928,155	\$804,672	\$545,589	\$129,564	\$733,111
Products, total value.....	\$24,393,794	\$7,198,982	\$5,378,004	\$4,415,172	\$938,384	\$6,463,252
Granulated sugar:						
Pounds.....	496,618,314	136,161,700	119,932,014	92,358,500	17,718,259	130,447,841
Value.....	\$23,493,373	\$6,892,883	\$5,184,031	\$4,267,606	\$902,136	\$6,246,717
Raw sugar:						
Pounds.....	11,223,607	4,040,342	4,031,227	1,459,400	-----	1,692,638
Value.....	\$431,229	\$153,885	\$120,109	\$51,916	-----	\$105,319
All other products.....	\$469,192	\$152,214	\$73,864	\$95,650	\$36,248	\$111,216

¹ Utah ranked fourth and Nebraska fifth, but in order to avoid disclosing the operations of individual establishments the statistics for Utah, which had 4 factories owned by 2 companies, and Nebraska, which had 3 factories owned by 2 companies, are included in those for "all other states."

² Includes establishments distributed as follows: Idaho, 3; Minnesota, 1; Nebraska, 3; New York, 1; Ohio, 1; Oregon, 1; Utah, 4; Washington, 1.

While it is intended to show the rank of states by value of products in this table, it is a noticeable fact that the same relative positions of the states are maintained with respect to capital, total wages paid, total cost of materials used, and quantity and value of granulated and raw sugars manufactured.

At the census of 1900 California was in the lead with 7 establishments and a production valued at \$3,499,996, Michigan ranked second with 9 establishments and \$1,602,266 for value of products, and Colo-

rado had 1 establishment, the product of which was not shown separately. By 1905 California had dropped from first to third place in point of production, while Michigan has retained its position in second place and Colorado has made such advances that its return showed the largest production reported by any single state.

Table 5 presents, by states, statistics showing the number of salaried employees and wage-earners and the amounts paid in salaries and in wages for 1900 and 1905, with per cent of increase.

TABLE 5.—COMPARATIVE SUMMARY—EMPLOYEES AND WAGES, WITH PER CENT OF INCREASE, BY STATES: 1905 AND 1900.

	UNITED STATES.			CALIFORNIA.			MICHIGAN.			ALL OTHER STATES. ¹		
	1905	1900	Per cent of increase.	1905	1900	Per cent of increase.	1905	1900	Per cent of increase.	1905	1900	Per cent of increase.
Number of establishments.....	51	30	-----	5	7	-----	19	9	-----	27	14	-----
Salaried officials, clerks, etc.:												
Total number.....	763	350	118.0	00	122	26.2	269	118	128.0	404	110	267.3
Total salaries.....	\$1,004,636	\$356,675	181.7	\$149,030	\$117,880	26.4	\$293,500	\$101,693	188.6	\$562,106	\$137,102	310.0
Officers of corporations—												
Number.....	122	48	154.2	11	11	-----	41	20	105.0	70	17	311.8
Salaries.....	\$284,781	\$114,300	149.1	\$61,730	\$39,900	54.7	\$91,667	\$33,400	174.5	\$131,384	\$41,000	220.4
General superintendents, managers, clerks, etc.—												
Total number.....	641	302	112.2	79	111	28.8	228	98	132.7	334	93	259.1
Total salaries.....	\$719,855	\$242,375	197.0	\$87,300	\$77,980	12.0	\$201,833	\$68,293	195.5	\$430,722	\$96,102	348.2
Men—												
Number.....	000	287	109.1	71	107	33.6	210	90	133.3	319	90	254.5
Salaries.....	\$702,969	\$235,657	198.3	\$83,820	\$75,637	10.8	\$195,157	\$65,706	197.0	\$423,992	\$94,314	349.5
Women—												
Number.....	41	15	173.3	8	4	100.0	18	8	125.0	15	3	400.0
Salaries.....	\$16,886	\$6,718	151.4	\$3,480	\$2,343	48.5	\$6,676	\$2,587	158.1	\$6,730	\$1,788	276.4
Wage-earners:												
Average number.....	3,963	1,970	101.2	614	909	32.5	1,211	473	156.0	2,138	588	263.6
Total wages.....	\$2,486,702	\$1,092,207	127.7	\$429,420	\$480,072	10.6	\$581,074	\$216,704	168.1	\$1,476,208	\$395,431	273.3
Men 16 years and over—												
Average number.....	3,928	1,951	101.3	606	903	32.9	1,205	471	155.8	2,117	577	266.9
Wages.....	\$2,472,032	\$1,085,218	127.8	\$424,771	\$477,306	11.0	\$578,665	\$215,834	168.1	\$1,468,596	\$392,078	274.6
Women 16 years and over—												
Average number.....	10	4	150.0	4	3	33.3	4	1	300.0	2	-----	-----
Wages.....	\$5,096	\$1,685	202.4	\$2,749	\$1,565	75.7	\$1,547	\$120	1,189.2	\$800	-----	-----
Children under 16 years—												
Average number.....	25	15	66.7	4	3	33.3	2	1	100.0	19	11	72.7
Wages.....	\$9,574	\$5,304	80.5	\$1,900	\$1,201	58.2	\$862	\$750	14.9	\$6,812	\$3,353	103.2

¹ In 1905 includes establishments distributed as follows: Colorado, 9; Idaho, 3; Minnesota, 1; Nebraska, 3; New York, 1; Ohio, 1; Oregon, 1; Utah, 4; Washington, 1; Wisconsin, 3. In 1900 includes Colorado, 1; Illinois, 1; Minnesota, 1; Nebraska, 3; New Mexico, 1; New York, 2; Oregon, 1; Utah, 3; Washington, 1.

² Decrease.

In 1905 compared with 1900 there were large increases in the number of people employed and in the amounts paid to them. Both the number of salaried employees and the average number of wage-earners more than doubled. The total amount paid in salaries at the census of 1905 exceeded the corresponding amount shown at the Twelfth Census by \$647,961, or 181.7 per cent. The wages paid to wage-earners of all classes increased \$1,394,495, or 127.7 per cent. The total increase in salaries and wages paid was \$2,042,456.

The number of salaried officials, clerks, etc., employed in California decreased 26.2 per cent, while the amount paid them in salaries increased 26.4 per cent. The total average number of wage-earners decreased 32.5 per cent, and the wages paid them decreased 10.6 per cent. The decrease in the number of wage-earners was for men.

For Michigan an increase of 100 per cent or over is shown for the number of each class of employees and also for the amounts paid in salaries and in wages

except children's wages. Only 2 children under 16 years were reported by the factories of this state. The greatest demand for this class of help in connection with the beet sugar industry is not in the factory but in the field, where children are employed in thinning the beets during the early stages of the growth of the plants.

In considering the number of employees and the compensation received, it should be borne in mind that the larger part of the wage-earners are employed for only a few months in the year. Some of the foremen, skilled laborers, etc., are employed for a longer time, but most of the wage-earners return to the farms or engage in other occupations after the manufacturing season closes. The average length of the campaign for the establishments in operation during the season 1904-5 was eighty-eight days.

Table 6 shows the quantity and cost of the materials used in 1900 and 1905, with the percentages of increase.

TABLE 6.—COMPARATIVE SUMMARY—QUANTITY AND COST OF MATERIALS USED, WITH PER CENT OF INCREASE, BY STATES: 1905 AND 1900.

	UNITED STATES.			CALIFORNIA.			MICHIGAN.			ALL OTHER STATES. ¹		
	1905	1900	Per cent of increase.	1905	1900	Per cent of increase.	1905	1900	Per cent of increase.	1905	1900	Per cent of increase.
Number of establishments.....	51	30	-----	5	7	-----	19	9	-----	27	14	-----
Materials used:												
Total cost.....	\$14,486,876	\$4,803,796	201.6	\$2,463,829	\$2,243,580	9.8	\$3,761,473	\$1,109,903	238.9	\$8,261,574	\$1,450,313	469.6
Sugar beets—												
Tons.....	2,175,417	794,658	173.8	405,865	354,942	14.3	535,508	205,925	160.1	1,234,044	233,791	427.8
Cost.....	\$11,345,785	\$3,485,320	225.5	\$1,918,240	\$1,685,953	21.0	\$2,956,801	\$902,592	227.6	\$6,470,744	\$996,775	549.2
Limestone—												
Tons.....	161,347	64,805	148.9	33,295	32,403	2.8	37,057	15,403	140.6	90,995	16,999	435.3
Cost.....	\$351,893	(²)	-----	\$89,715	(²)	-----	\$76,405	(²)	-----	\$185,773	(²)	-----
Coke—												
Tons.....	16,585	7,519	120.6	3,549	3,274	8.4	4,231	2,079	103.5	8,805	2,166	306.5
Cost.....	\$148,721	(²)	-----	\$41,557	(²)	-----	\$25,282	(²)	-----	\$81,882	(²)	-----
Sulphur—												
Tons.....	695	149	366.4	101	51	98.0	186	40	365.0	408	58	603.4
Cost.....	\$30,408	(²)	-----	\$3,221	(²)	-----	\$7,738	(²)	-----	\$19,449	(²)	-----
Fuel, cost.....	\$1,225,015	\$453,036	170.4	\$180,582	\$253,185	* 28.7	\$338,748	\$90,969	272.4	\$705,685	\$108,882	548.1
All other materials, including freight.....	\$1,385,054	\$865,440	60.0	\$230,514	\$404,442	* 43.0	\$356,499	\$116,342	206.4	\$798,041	\$344,656	132.1

¹ In 1905 includes establishments distributed as follows: Colorado, 9; Idaho, 3; Minnesota, 1; Nebraska, 3; New York, 1; Ohio, 1; Oregon, 1; Utah, 4; Washington, 1; Wisconsin, 3. In 1900 includes Colorado, 1; Illinois, 1; Minnesota, 1; Nebraska, 3; New Mexico, 1; New York, 2; Oregon, 1; Utah, 3; Washington, 1.

² Not reported separately in 1900; values included in "all other materials."

* Decrease.

The increase in the total cost of materials used in California was only 9.8 per cent, while the increase for Michigan was 238.9 per cent, and that for the United States as a whole 201.6 per cent. The total quantity of beets used increased 173.8 per cent and the cost 225.5 per cent. Their average cost per ton in 1900 was \$4.39, while the corresponding cost shown by the reports for the census year 1905 was \$5.21 per ton, an increase of 82 cents per ton, or 18.7 per cent.

In 1905 compared with 1900 the quantity of beets used in California increased 14.3 per cent and the value 21 per cent, while the cost per ton advanced from \$4.47 to \$4.73.

For Michigan the quantity of beets increased 160 per cent and the cost 227.6 per cent; while the price paid per ton increased from \$4.38 to \$5.52.

Since the amounts expended for limestone, coke, and sulphur were not shown separately in the reports of the Twelfth Census, no comparison of these items can be made for the two census years. The cost of fuel, which is one of the principal items of expense in the manufacture of beet sugar, increased 170.4 per cent for the United States. The decreases in this item, and in the cost of all other materials for California, are due to the smaller number of establishments reporting at this census.

Table 7 presents statistics showing the acreage, quantity, and cost of beets raised, by states, as reported by the factories, with percentages of increase, for 1900 and 1905.

TABLE 7.—COMPARATIVE SUMMARY—ACREAGE IN BEETS, AND QUANTITY AND COST OF BEETS USED, WITH PER CENT OF INCREASE, BY STATES: 1905 AND 1900.

	UNITED STATES.			CALIFORNIA.			MICHIGAN.			ALL OTHER STATES. ¹		
	1905	1900	Per cent of increase.	1905	1900	Per cent of increase.	1905	1900	Per cent of increase.	1905	1900	Per cent of increase.
Number of establishments	51	30	-----	5	7	-----	19	11	-----	27	14	-----
Beets:												
Acres.....	240,757	135,305	77.9	33,473	63,878	*47.6	85,350	37,034	130.5	121,934	34,393	254.5
Tons.....	2,175,417	794,658	173.8	405,865	354,942	14.3	535,508	205,925	160.1	1,234,044	233,791	427.8
Cost.....	\$11,345,785	\$3,485,320	225.5	\$1,918,240	\$1,585,953	21.0	\$2,956,891	\$902,592	227.6	\$6,470,744	\$996,775	549.2
Grown directly by factory—												
Acres.....	20,484	10,239	100.1	5,419	7,526	*28.0	7,653	28	27,232.1	7,412	2,685	176.0
Tons.....	169,839	23,241	630.8	57,774	10,645	442.7	41,126	218	18,765.1	70,939	12,378	473.1
Cost.....	\$864,648	\$93,898	820.8	\$282,569	\$42,718	561.5	\$231,192	\$511	45,143.1	\$350,887	\$50,669	592.5
Grown by tenants of factory—												
Acres.....	20,223	13,074	54.7	8,787	12,762	*31.1	4,300	-----	-----	7,136	312	2,187.2
Tons.....	210,247	95,071	121.1	106,853	93,294	14.5	25,540	-----	-----	77,854	1,777	4,281.2
Cost.....	\$998,333	\$430,479	131.9	\$476,395	\$422,704	12.7	\$136,361	-----	-----	\$385,577	\$7,775	4,859.2
Grown by contract by others than tenants of factory—												
Acres.....	200,050	111,992	78.6	19,267	43,590	*55.8	73,397	37,006	98.3	107,386	31,396	242.0
Tons.....	1,795,331	676,346	165.4	241,238	251,003	*3.9	468,842	205,707	127.9	1,085,251	219,636	394.1
Cost.....	\$9,482,804	\$2,960,943	220.2	\$1,159,276	\$1,120,551	3.5	\$2,589,248	\$902,081	187.0	\$5,734,280	\$938,331	511.1
Average quality of beets used:												
Per cent of sucrose.....	15.0	14.3	-----	15.1	15.9	-----	14.3	13.3	-----	15.3	13.6	-----
Per cent of purity.....	83.2	81.2	-----	80.6	81.2	-----	84.2	82.9	-----	83.7	79.7	-----

¹ In 1905 includes establishments distributed as follows: Colorado, 9; Idaho, 3; Minnesota, 1; Nebraska, 3; New York, 1; Ohio, 1; Oregon, 1; Utah, 4; Washington, 1; Wisconsin, 3. In 1900 includes Colorado, 1; Illinois, 1; Minnesota, 1; Nebraska, 3; New Mexico, 1; New York, 2; Oregon, 1; Utah, 3; Washington, 1.

* Decrease.

The area contracted for in 1904 was 240,757 acres, an increase of 77.9 per cent over the 135,305 acres reported at the Twelfth Census. At the census of 1900 the yield of beets amounted to 794,658 tons, or an average of 5.87 tons per acre on the acreage contracted for. As a result of the poor yield in that year, however, over 30,000 acres were not harvested. The total acreage contracted for at the present census yielded 2,175,417 tons, or an average of 9.04 tons per acre. This yield for the United States is much lower than the average for European countries and also much lower than the average for several individual states.

In California 33,473 acres were contracted for in the census year 1905 and the production was 405,865 tons, or an average yield of 12.12 tons per acre. The acreage contracted for in the year covered by the Twelfth Census was 63,878 acres and the production reported amounted to 354,942 tons, the average being 5.56 tons per acre. This apparently large difference in yield per acre for the two censuses is partially accounted for by the fact that the season for which the statistics are shown at the census of 1905 was an exceptionally good one for growing beets in California, while the crop of 1899, which is the one reported at the census of 1900, was far below the average for previous years.

In 1905 Colorado reported 49,980 acres, with a production of 561,266 tons, or an average of 11.23 tons per acre.

The production reported for Michigan was for the crop of 1903. This was an unfavorable year in Michigan, on account of the excessive rainfall early in the season and again at harvesting time, and the figures for that year could scarcely be considered a fair average of what the state can produce under favorable weather conditions. The schedules for this state show 85,350 acres contracted for, and a yield of 535,508 tons, or 6.27 tons per acre.

When the total acreage and the total yield per acre for the United States are considered, it is seen that the beets grown by tenants of the factories yielded 10.4 tons per acre and were 9.7 per cent of the total crop, those grown by contract by others than tenants of the factories yielded 8.97 tons per acre and amounted to 82.5 per cent of the whole crop, and those grown directly by the factories yielded 7.55 tons per acre and formed 7.8 per cent of the total.

The tendency among the factories is to contract for as much of the crop as possible among the independent farmers, encouraging them by giving practical instruction and advice as to planting and growing the beets, rather than to have a large acreage of beets grown directly by the factory.

The percentage of sucrose and the coefficient of purity were higher in every state, with the exception of California, in 1905 than in 1900. In Michigan 8 of the 19 factories purchased part of their beets at a fixed rate, but all the factories in the state purchased the bulk of their beets on the basis of an analysis, paying \$4.50 per ton for beets containing 12 per cent of

sucrose, with 33½ cents per ton increase, or decrease, for each 1 per cent above or below 12 per cent. In Colorado beets were purchased at \$5 per ton, loaded on the cars at the nearest switch. In California 3 factories purchased beets at a fixed price, and 2 paid for their beets on the basis of an analysis. In Wisconsin the price was \$4.50 per ton for beets containing 14 per cent of sucrose, with 25 cents additional for each 1 per cent above that proportion.

In 6 of the remaining states a fixed rate was paid,

and in the other 2 the beets were paid for on the basis of an analysis. In one case a difference of 25 cents per ton was made between beets delivered on cars and beets delivered by wagon. One factory paid a small bonus for beets delivered at specified times, and several factories added 25 cents to the regular price for pitted beets.

The comparison of products by states shown in Table 8 affords an interesting study of the growth of the beet sugar production between 1900 and 1905.

TABLE 8.—COMPARATIVE SUMMARY—QUANTITY AND VALUE OF PRODUCTS, WITH PER CENT OF INCREASE, BY STATES: 1905 AND 1900.

	UNITED STATES.			CALIFORNIA.			MICHIGAN.			ALL OTHER STATES. ¹		
	1905	1900	Per cent of increase.	1905	1900	Per cent of increase.	1905	1900	Per cent of increase.	1905	1900	Per cent of increase.
Number of establishments.....	51	30	.....	5	7	.....	19	9	.....	27	14	.....
Products, total value..	\$24,393,794	\$7,323,857	233.1	\$4,415,172	\$3,499,996	26.1	\$5,378,004	\$1,602,266	235.6	\$14,600,618	\$2,221,595	557.2
Granulated sugar:												
Pounds.....	496,618,314	115,686,356	329.3	92,358,500	43,839,911	110.7	119,932,014	32,737,098	266.3	284,327,800	39,109,347	627.0
Value.....	\$23,493,373	\$5,580,527	321.0	\$4,267,606	\$2,049,726	108.2	\$5,184,031	\$1,561,100	232.1	\$14,041,736	\$1,969,701	612.9
Raw sugar:												
Pounds.....	11,223,607	47,771,719	*76.5	1,459,400	42,901,802	*96.6	4,031,227	971,185	315.1	5,732,980	3,898,732	47.0
Value.....	\$431,229	\$1,642,054	*73.7	\$51,916	\$1,440,592	*96.4	\$120,109	\$39,184	206.5	\$259,204	\$162,278	59.7
Molasses:												
Gallons.....	9,609,542	*3,551,856	170.6	2,759,500	*1,708,501	61.5	1,081,131	321,100	236.7	5,768,911	1,522,255	279.0
Value.....	\$221,097	\$25,102	780.8	\$52,491	(*)	.....	\$21,741	\$1,225	1,674.8	\$146,865	\$23,877	515.1
Beet pulp.....	\$202,070	\$21,822	826.0	\$32,358	\$6,968	364.4	\$45,414	\$241	18,744.0	\$124,298	\$14,613	750.6
All other products.	\$46,025	\$54,352	*15.3	\$10,801	\$2,710	298.6	\$6,709	\$516	1,200.2	\$28,515	\$51,126	*44.2

¹ In 1905 includes establishments distributed as follows: Colorado, 9; Idaho, 3; Minnesota, 1; Nebraska, 3; New York, 1; Ohio, 1; Oregon, 1; Utah, 4; Washington, 1; Wisconsin, 3. In 1900 includes Colorado, 1; Illinois, 1; Minnesota, 1; Nebraska, 3; New Mexico, 1; New York, 2; Oregon, 1; Utah, 3; Washington, 1.

² Decrease.

³ Includes quantities for which no value was given, also wastage.

⁴ Not reported.

In 1905 compared with 1900 the aggregate value of all products increased from \$7,323,857 to \$24,393,794, or 233.1 per cent. The quantity of granulated sugar increased 329.3 per cent, and the average selling price was slightly lower than that reported in 1900. The quantity of raw sugar reported decreased 76.5 per cent, principally because of the large falling off of this item in California.

The very large increases in the values reported for molasses and beet pulp are directly traceable to the increased use of these articles as stock food.

Table 9 gives the commercial sugar production of the world from 1853 to 1905, subdivided so as to show separately the amounts derived from cane and beets and the percentage which each was of the total crop.

TABLE 9.—Commercial sugar production of the world: 1853-54 to 1904-5.¹

YEAR. ²	TONS. ³			PER CENT.	
	Total.	Cane.	Beet.	Cane.	Beet.
1853-54.....	1,420,558	1,219,558	201,000	85.9	14.1
1854-55.....	1,381,817	1,202,817	179,000	87.0	13.0
1855-56.....	1,413,498	1,176,498	237,000	83.2	16.8
1856-57.....	1,509,214	1,259,214	250,000	83.4	16.6
1857-58.....	1,662,253	1,300,253	362,000	78.2	21.8
1858-59.....	1,893,504	1,510,504	383,000	79.8	20.2
1859-60.....	1,674,316	1,291,316	383,000	77.1	22.9
1860-61.....	1,841,264	1,490,264	345,000	81.3	18.7
1861-62.....	2,006,226	1,601,226	405,000	79.8	20.2
1862-63.....	1,944,193	1,486,193	458,000	76.4	23.6
1863-64.....	1,869,664	1,433,664	436,000	76.7	23.3
1864-65.....	1,938,413	1,417,413	541,000	72.4	27.6
1865-66.....	2,168,872	1,488,872	680,000	68.6	31.4
1866-67.....	2,022,407	1,378,407	644,000	68.2	31.8
1867-68.....	2,264,571	1,636,096	628,775	72.3	27.8
1868-69.....	2,233,130	1,585,309	647,821	71.0	29.0
1869-70.....	2,495,285	1,662,239	833,046	66.6	33.4
1870-71.....	2,527,181	1,699,488	927,693	63.3	36.7
1871-72.....	2,650,663	1,791,184	859,479	67.6	32.4
1872-73.....	2,965,329	1,840,986	1,124,343	62.1	37.9
1873-74.....	2,857,612	1,711,763	1,145,849	59.9	40.1
1874-75.....	2,922,017	1,756,681	1,165,336	60.1	39.9
1875-76.....	3,043,749	1,692,228	1,350,921	55.6	44.4
1876-77.....	2,766,270	1,682,531	1,083,739	60.8	39.2
1877-78.....	3,114,273	1,715,900	1,398,373	55.1	44.9
1878-79.....	3,515,266	1,965,990	1,549,276	55.9	44.1
1879-80.....	3,334,268	1,903,316	1,430,952	57.1	42.9
1880-81.....	3,648,847	1,902,346	1,746,501	52.1	47.9
1881-82.....	3,847,668	2,016,084	1,831,584	52.4	47.6
1882-83.....	4,217,142	2,104,072	2,113,070	49.9	50.1
1883-84.....	4,871,079	2,547,531	2,323,548	52.3	47.7
1884-85.....	5,099,255	2,592,647	2,506,608	50.8	49.2
1885-86.....	4,888,340	2,702,850	2,185,490	55.3	44.7
1886-87.....	5,513,278	2,805,735	2,707,543	50.9	49.1
1887-88.....	5,084,981	2,642,000	2,442,981	52.0	48.0
1888-89.....	5,224,379	2,480,700	2,743,679	47.5	52.5
1889-90.....	6,054,209	2,475,800	3,578,409	40.9	59.1
1890-91.....	6,524,609	2,868,900	3,655,709	44.0	56.0
1891-92.....	6,683,497	3,231,561	3,451,936	48.3	51.7
1892-93.....	6,431,609	3,045,186	3,386,423	47.3	52.7
1893-94.....	7,379,862	3,531,621	3,848,241	47.9	52.1
1894-95.....	8,247,553	3,510,670	4,736,883	42.6	57.4
1895-96.....	7,056,401	2,809,477	4,246,924	39.8	60.2
1896-97.....	7,718,279	2,841,857	4,876,422	36.8	63.2
1897-98.....	7,660,068	2,864,255	4,795,813	37.4	62.6
1898-99.....	7,931,275	2,995,438	4,935,837	37.8	62.2
1899-1900.....	8,560,109	3,056,294	5,503,815	35.7	64.3
1900-1901.....	9,618,333	3,646,059	5,972,274	37.9	62.1
1901-2.....	10,895,588	4,078,944	6,816,644	37.4	62.6
1902-3.....	9,804,339	4,144,453	5,659,886	42.3	57.7
1903-4.....	10,333,674	4,244,206	6,089,468	41.1	58.9
1904-5.....	9,552,635	4,629,937	4,922,698	48.5	51.5

¹ The statistics for the cane sugar production prior to 1888-89 are taken from trade circulars of Messrs. Rueb & Co., as reprinted in British official reports on the sugar trade (Returns No. 325 of 1884 and No. 172 of 1889). Statistics for 1874-75 to 1880-81 have been increased by adding the exports from Hawaii, which were not included in Rueb's estimates prior to 1881-82. Beginning with 1888-89 the statistics for cane sugar are taken from Willett & Gray's Weekly Statistical Sugar Trade Journal, the returns for each of the first three years being increased 200,000 tons to allow for the product of countries not included prior to 1891-92. Beet sugar statistics for Europe since 1865-66 are Licht's figures, taken from Sugar Cane and the International Sugar Journal, and for the years 1853-54 to 1865-66, inclusive, from Jules Helot's *Le Sucre de Betterave en France*, page 209. The statistics for the United States beet sugar for 1891-92 to 1894-95 are taken from the annual reports of the Commissioner of Internal Revenue; for 1897-98, from a special report of the Department of Agriculture; for 1899-1900, from the Twelfth Census; and for other years, from Willett & Gray, as cited in Bulletin of the Department of Agriculture, "International Sugar Situation."

² Prior to 1888-89 the statistics for cane sugar refer to calendar years, but are given as if by campaigns, in order to compare with the beet sugar statistics. In the production of cane sugar, the figures for the calendar year in which the beet sugar campaign ends are taken as the figures for that campaign; for instance, the production of cane sugar for the calendar year 1854 is given for the campaign of 1853-54.

³ Tons of 2,240 pounds.

In 1853-54 the world's production of sugar was 1,420,558 long tons, of which 201,000, or 14.1 per cent, were accredited to the beet. The increase from this source has been steady and rapid. In 1899-1900 the world's production was 8,560,109 long tons, of which 3,056,294, or 35.7 per cent, were from cane and 5,503,815, or 64.3 per cent, from beets. In 1904-5 the production of beet sugar was 51.6 per cent of the total crop. Between 1853 and 1905 the production of cane sugar increased 279.6 per cent, and in the same time the production of beet sugar increased 2,349.1 per cent.

More than 50 per cent of the world's production has been taken from beets during each campaign since 1888-89.

By-products.—The utilization of by-products is one of the leading factors in the contest in all parts of the world between cane and beets as a source of sugar, and the time is coming when the use of these by-products will constitute one of the principal sources of income for beet sugar factories.

Laws in many of the European countries exempt from taxation the pulp and molasses of beet sugar factories when they are to be used for cattle feed, and in this country the use of this portion of the factory product is being developed to a limited extent. In several of the states where formerly all the beet pulp was wasted, being disposed of in many cases at considerable expense, there is now a good demand for it at from \$1 to \$1.50 per ton. When it is realized that from 50 to 75 per cent of the weight of beets used by a factory is turned out as beet pulp, it will be seen that the yield in suitable stock food from a crop of over 2,000,000 tons, such as was reported at the present census, is no inconsiderable item.

The amount realized from the sale of beet pulp in 1905 was \$202,070. Estimating the output of pulp from the past season's crop at one-half the weight of the beets, it should have brought over \$1,500,000. If the stock raisers of this country were properly impressed with the food value of the pulp, there would be a demand for every ton of it, as there is each year in Germany and other foreign beet raising countries. In the Western states large numbers of cattle, sheep, etc., are being fed on the pulp from the factories, and in some cases on the pulp and molasses combined, and the splendid results now being produced because of the use of this feed will greatly impress the farmers and stock raisers with its value. One of the reasons why pulp has not been used more extensively for feeding is that sugar factories are often established in districts where cattle are not extensively kept and consequently the demand for the pulp is small.

The excessive weight of the pulp has prevented its being shipped any great distance, and as a result has limited its use as feed. Recently factories have been established which dry the pulp and work it up into a high class stock food. Not only is the weight greatly reduced in this way, but the nutritive elements are increased and the product is made available for shipment and for storing like corn, cottonseed meal, bran, and other kinds of stock foods.

The beet juice is used extensively for the purpose of making alcohol, and with the prospects of the increased use of lime cake for fertilizers and lime cake and asphalt for pavements, etc., the future looks bright for the by-products of the factories.

Bounties.—In addition to the bounty provided for under the tariff act of 1890, most of the states in which

beet sugar factories have been started have, at some stage, of the industry, made provision for state bounties to be paid on the amount of sugar manufactured. In a great many states the laws that provide for this bounty have been declared unconstitutional or have been repealed by succeeding legislatures. In the state of Nebraska no less than three different legislatures passed acts providing for a bounty, but in each case the next legislature either repealed the act or failed to make any appropriation for the payment of the bounty. In Michigan a bounty law was passed which was the main cause of the building of several of the factories in that state; however, when these factories presented their claims to the state auditor he refused to pay the bounty. The matter was carried through the higher courts of the state and the action of the auditor was sustained. Action similar to this was taken by the auditor in the state of Idaho, and the matter is now before the courts of that state. The law in that state provides that the bounty shall cease after the year 1904.

Bounties were paid in Minnesota in 1898 and 1899, but in 1900 payment was refused on the ground that the bounty law was unconstitutional. The law of New York provides for the payment of one-half of a cent per pound on all beet sugar produced in the state in 1904. Utah made appropriations for the payment of sugar bounties for two seasons, but no bounties have been paid for a number of years.

In Kansas, Iowa, South Dakota, Indiana, Pennsylvania, Illinois, and several other states, bounty laws have been passed, and in some cases bounties have been paid, but the practice is becoming obsolete.

Congress has provided for the free entry into this country of beet sugar machinery of foreign manufacture, and in addition has made appropriations that enable the Department of Agriculture to conduct investigations and experiments relative to the beet sugar industry.

HISTORICAL.¹

Although experiments were made in this country as early as 1830, the first successful factory was erected in 1870, so the manufacture of beet sugar as an American industry can be said to date from this latter year.

Of the attempts before that year, the first one recorded was made in 1830, when a small factory was erected in Philadelphia, Pa. In the one year during which the establishment was in operation a few hundred pounds of sugar were produced. In 1837 a factory was erected in Northampton, Mass., but it proved to be a failure and was abandoned about 1840. The next attempt was made in 1852-53, in a factory purchased in England and moved to Utah, but there was no successful production of beet sugar in this country

until 1889. The next factory was erected at Chatsworth, Ill., in 1863. This factory was operated with indifferent success until 1870, when it finally failed. It was then moved to Freeport, Ill., where it was operated for one year, after which it was moved to Black Hawk, Wis. Its career in Wisconsin was short; after one year the enterprise failed and later part of the machinery was removed to California. Other factories were attempted in various states during the next few years, but all failed or were discontinued for various reasons.

No production of beet sugar was reported at any census previous to 1880, when 4 establishments were shown—2 in California, 1 in Delaware, and 1 in Maine. Of these 4 all but 1—the plant at Alvarado, Cal.—afterwards failed, and in 1890 only 2 establishments were reported, both of which were located in California. The reports of the Twelfth Census show 30 establishments in 11 states, and the present census covers 12 states and 51 establishments. These factories are scattered all the way from New York to California, and while only 12 states reported factories it must not be supposed that these are the only states capable of successful beet sugar production, or that all available beet growing areas in them have been utilized. In 1905 sugar beets were grown in 2 states which had no factories, and experience has shown that there are numbers of others which have the soil and climatic conditions necessary to successful beet cultivation.

The following is a brief summary of the history of the beet sugar industry and conditions surrounding it in the states producing the greater part of the total production reported at the present census:

California.—In 1900 this state ranked first in point of production, but in 1905 it stood third. This lower rank, however, is probably only a temporary condition of affairs, since 2 large factories in the state were idle during the census year and many new beet sugar projects were under contemplation.

In California there is a larger acreage that is well adapted to the growing of sugar beets than is found in any other state in the Union. Moreover, California has had about thirty-five years of experience in the industry.

The oldest successful factory in the United States is located in California, and in this state is also the largest sugar factory in this country and one of the largest in the world. Many of the factories that suffered from lack of rainfall have had to resort to the system of irrigation. When this system is fully installed a greatly increased production may be confidently expected.

Although 12.12 tons was the average yield per acre for the state the past year, individual crops have been reported that run as high as 20 and 25 tons, producing a gross income to the farmer of over \$100 per acre. The factories of the state have a total combined capital of over \$10,000,000, and last season they reported

¹ Much of the historical data contained in this text has been obtained from the yearly reports of the Department of Agriculture on Progress of the Beet Sugar Industry in the United States.

an expenditure of over \$3,000,000 for labor and supplies and the sale of over \$4,000,000 worth of sugar.

Colorado.—Millions of dollars of capital have been invested in the beet sugar industry in Colorado during the last few years. In 1896 the state experiment station began the extensive experiments which resulted in the building of a factory at Grand Junction in 1898. From this beginning the industry has grown in seven years to such an extent that at the present time Colorado ranks first of all the beet raising states in amount of capital invested, tonnage of beets raised, and value of products. At the census of 1900, 1 beet sugar factory was reported from this state, and at the census of 1905 there were 9 large factories in operation. These factories turned out over \$7,000,000 worth of sugar and distributed over \$1,000,000 in salaries and wages, and over \$4,000,000 for supplies and miscellaneous expenses.

Extensive experiments in feeding cattle and sheep on the beet pulp are being carried on, and this branch of the industry is further advanced in Colorado than in any other state at the present time.

Beets are grown almost entirely by irrigation in this state. The average yield for the state last season was 11.23 tons per acre from a total of 49,980 acres. Fall rains and snows caused a partial second growth in portions of the state, thus reducing the quality of the beets.

Michigan.—The history of the beet sugar industry affords but few more striking examples of rapid progress than is furnished by the state of Michigan. The first factory in the state was built in 1898 and handled a crop of beets from 2,500 acres of ground. Two years later the Twelfth Census was taken, and Michigan reported 9 factories in operation, 37,034 acres devoted to the cultivation of beets, and a yield of 205,925 tons. At the time of the present census 19 factories were in operation, 85,350 acres of ground were cultivated, and 535,508 tons of beets were grown. As the crop in Michigan for the year covered by this report was injured by excessive rains, the yield should not be considered a fair average for a series of years. While many failures, both in factories and among the farmers, have been reported from the state, the industry is firmly established and is making rapid progress.

The state is within easy reach of the large markets of the country and has splendid transportation facilities, both by rail and by water. Some of the factories have express service over the interurban electric railroads of the state, and one factory alone reported the receipt of over 10,000 tons of beets over these lines during the previous year.

The utilization of the factory by-products has received considerable attention in this state. One plant at Bay City purchases the beet juice from a great many of the factories and uses it in making alcohol. Another establishment buys the lime cake

from beet sugar factories, mixes it with asphalt, and manufactures it into paving blocks. The beet pulp is being used for feeding purposes, and the amount realized from the sale of this article in the census year shows a large increase over the amount reported for similar sales at the Twelfth Census.

Utah.—The attention of the people of Utah was attracted to the question of beet sugar factories as early as 1852, and in that year a factory was purchased in England and shipped to Utah. It arrived in 1853 and was erected at Provo, but no sugar was manufactured. It was not until 1889 that the first successful factory was erected.

Utah has the distinction of having been the first locality in the world to make the experiment of growing sugar beets by irrigation. The continued success of the sugar industry for a number of years has shown that, with irrigation, there is little to fear from change of seasons or irregularity in crop conditions. Because of the certainty of the proper amount of moisture from the irrigation ditches at the right period, the farmers are practically independent of rainfall, and it is possible to estimate almost the exact tonnage that will be produced on a given area of land. These ideal conditions insure a continuation of the prosperity that the factories in the state are at present enjoying.

The factories in Utah have solved the problem of delivery of most of their beets to the factory by wagon or railroad. Slicing stations have been established at several points from 12 to 25 miles distant from a factory, and these are connected with the central factory by pipe lines. The beets from the neighboring country are received at these slicing stations, and after the juice has been extracted it is treated with a composition of lime for purposes of preservation and then forced through the pipes to the factory.

In order to avoid revealing the operations of individual establishments, no detailed data regarding the operations of the factories of Utah for the census year can be given separately.

Nebraska.—The first beet sugar factory in Nebraska was erected in 1890 at Grand Island, and was followed by two more, located at Norfolk and Leavitt. The statistics of these factories were included in those for "all other states," both at the Twelfth Census and at the present census. There has been no increase in the number of factories since 1900, but there has been an increased growth of beets each season for several years. With the development of irrigation projects which have been started in the western part of the state, the chances for still greater production are good.

Wisconsin.—Although experiments were made with beet sugar factories in Wisconsin as far back as 1871, it has only been of recent years that the industry has been firmly established. In 1905 there were 3 factories in operation in the state, with a combined capital of \$2,171,698. During the year they distributed

\$773,550 for labor, materials, and miscellaneous expenses, and had a total production valued at \$938,384.

Other states.—In 1905 Idaho reported 3 factories in operation, and Minnesota, New York, Ohio, Oregon, and Washington each reported 1. For each of these establishments a good production was shown.

On the whole, the industry seems to be thoroughly established in most of the states reported at this census, and the increased production is steadily reducing the amount of sugar imported from other countries.

In view of what has already been accomplished, and with the intelligence of American farmers directed toward more scientific methods of beet culture, and the ingenuity of American manufacturers constantly improving the methods of extracting the sugar from beets, it is reasonable to expect that the time is coming when the United States will be producing every pound of sugar which is consumed within its borders.

Table 10 presents, in detail, the statistics for the manufacture of beet sugar, by states, for 1905.

TABLE 10.—BEET SUGAR—DETAILED SUMMARY, BY STATES: 1905.

	United States.	California.	Colorado.	Michigan.	Wisconsin.	All other states. ¹
Number of establishments.....	51	5	11	19	3	15
Capital:						
Total.....	\$55,923,459	\$10,672,786	\$15,639,588	\$12,989,630	\$2,171,698	\$14,449,757
Land.....	\$1,737,943	\$193,903	\$888,756	\$343,898	\$22,599	\$338,787
Buildings.....	\$11,466,749	\$1,819,614	\$2,681,208	\$3,601,987	\$476,186	\$2,887,754
Machinery, tools, and implements.....	\$28,695,825	\$5,639,949	\$7,579,871	\$7,229,599	\$972,219	\$7,274,187
Cash and sundries.....	\$14,022,942	\$3,019,320	\$4,539,753	\$1,814,146	\$700,694	\$3,949,029
Salaried officials, clerks, etc.:						
Total number.....	763	90	96	269	47	261
Total salaries.....	\$1,004,636	\$149,030	\$219,318	\$293,500	\$51,500	\$291,288
Officers of corporations—						
Number.....	122	11	11	41	4	55
Salaries.....	\$284,781	\$61,730	\$60,404	\$91,667	\$15,000	\$55,980
General superintendents, managers, clerks, etc.—						
Total number.....	641	79	85	228	43	206
Total salaries.....	\$719,855	\$87,300	\$158,914	\$201,833	\$36,500	\$235,308
Men—						
Number.....	600	71	83	210	41	195
Salaries.....	\$702,969	\$83,820	\$157,614	\$195,157	\$35,300	\$231,078
Women—						
Number.....	41	8	2	18	2	11
Salaries.....	\$16,886	\$3,480	\$1,300	\$6,676	\$1,200	\$4,230
Wage-earners, including pieceworkers, and total wages:						
Greatest number employed at any one time during the year.....	13,178	1,627	2,953	5,006	782	2,810
Least number employed at any one time during the year.....	5,675	529	1,294	1,641	770	1,441
Average number.....	3,963	614	1,048	1,211	168	922
Total wages.....	\$2,486,702	\$429,420	\$792,916	\$581,074	\$96,882	\$586,410
Men 16 years and over—						
Average number.....	3,928	606	1,039	1,205	168	910
Wages.....	\$2,472,032	\$424,771	\$788,486	\$578,665	\$96,882	\$583,228
Women 16 years and over—						
Average number.....	10	4	1	4	—	1
Wages.....	\$5,096	\$2,749	\$560	\$1,547	—	\$240
Children under 16 years—						
Average number.....	25	4	8	2	—	11
Wages.....	\$9,574	\$1,900	\$3,870	\$862	—	\$2,942
Average number of wage-earners, including pieceworkers, employed each month:						
Men 16 years and over—						
January.....	2,927	175	659	1,300	190	603
February.....	901	193	314	209	10	175
March.....	1,050	242	405	168	10	225
April.....	1,167	300	305	204	10	348
May.....	1,359	394	320	255	10	380
June.....	1,458	460	368	286	10	334
July.....	1,887	565	566	300	10	386
August.....	2,663	847	988	386	10	432
September.....	5,164	1,304	1,382	559	10	1,909
October.....	9,244	1,446	2,687	2,594	190	2,327
November.....	10,156	791	2,579	3,937	770	2,079
December.....	9,160	555	1,895	4,202	786	1,722
Women 16 years and over—						
January.....	13	—	—	13	—	—
February.....	—	—	—	—	—	—
March.....	—	—	—	—	—	—
April.....	—	—	—	—	—	—
May.....	—	—	—	—	—	—
June.....	1	1	—	—	—	—
July.....	2	2	—	—	—	—
August.....	7	3	—	—	—	—
September.....	18	11	4	—	—	3
October.....	34	22	4	5	3	3
November.....	25	9	—	13	3	3
December.....	20	—	—	17	3	3
Children under 16 years—						
January.....	9	—	—	6	—	3
February.....	1	—	—	—	—	1
March.....	—	—	—	—	—	—
April.....	—	—	—	—	—	—
May.....	—	—	—	—	—	—
June.....	—	—	—	—	—	—
July.....	—	—	—	—	—	—
August.....	16	11	5	—	—	—
September.....	51	18	—	—	—	25
October.....	83	19	28	6	—	30
November.....	70	—	28	6	—	36
December.....	70	—	27	6	—	37
Miscellaneous expenses:						
Total.....	\$1,999,555	\$305,410	\$459,880	\$706,628	\$39,792	\$487,845
Rent of works.....	\$8,675	—	—	\$8,675	—	—
Taxes, not including internal revenue.....	\$234,768	\$24,714	\$80,666	\$72,898	\$1,300	\$55,190
Rent of offices, insurance, and all other sundry expenses, not hitherto included.....	\$1,742,857	\$279,673	\$379,214	\$620,889	\$38,492	\$424,589
Contract work.....	\$13,255	\$1,023	—	\$4,166	—	\$8,066

¹ Includes establishments distributed as follows: Idaho, 3; Minnesota, 1; Nebraska, 3; New York, 1; Ohio, 1; Oregon, 1; Utah, 4; Washington, 1.

BEET SUGAR.

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TABLE 10.—BEET SUGAR—DETAILED SUMMARY, BY STATES: 1905—Continued.

	United States.	California.	Colorado.	Michigan.	Wisconsin.	All other states.
Materials used:						
Total cost.....	\$14,486,876	\$2,463,829	\$3,892,405	\$3,761,473	\$585,370	\$3,783,793
Sugar beets—						
Tons.....	2,175,417	405,865	561,266	535,508	85,015	587,763
Cost.....	\$11,345,785	\$1,918,240	\$2,964,250	\$2,956,801	\$455,812	\$3,050,682
Limestone—						
Tons.....	161,347	33,295	44,508	37,057	6,022	40,465
Cost.....	\$351,893	\$89,715	\$107,467	\$76,405	\$9,785	\$68,521
Coke—						
Tons.....	16,585	3,549	4,086	4,231	646	4,073
Cost.....	\$148,721	\$41,557	\$39,065	\$25,282	\$3,668	\$39,149
Sulphur—						
Tons.....	695	101	256	186	18	134
Cost.....	\$30,408	\$3,221	\$12,360	\$7,738	\$787	\$6,302
Barrels, purchased as such.....	\$80,970	\$13		\$64,652	\$6,085	\$10,220
Sacks, purchased as such.....	\$424,903	\$104,028	\$134,313	\$55,027	\$12,877	\$118,658
Fuel.....	\$1,225,015	\$180,582	\$303,844	\$338,748	\$58,699	\$343,142
Mill supplies.....	\$102,897	\$14,031	\$9,655	\$34,183	\$12,513	\$32,615
All other materials.....	\$656,397	\$112,442	\$321,551	\$148,736	\$8,150	\$65,518
Freight.....	\$119,887			\$53,901	\$17,000	\$48,986
Products:						
Total value.....	\$24,393,794	\$4,415,172	\$7,198,982	\$5,378,004	\$938,384	\$6,463,252
Granulated sugar—						
Pounds.....	496,618,314	92,358,500	136,161,700	119,932,014	17,718,259	130,447,841
Value.....	\$23,493,373	\$4,267,606	\$6,892,883	\$5,184,031	\$902,136	\$6,246,717
Raw sugar—						
Pounds.....	11,223,607	1,459,400	4,040,342	4,031,227		1,692,638
Value.....	\$431,229	\$51,916	\$153,885	\$120,109		\$105,319
Molasses—						
Gallons.....	9,609,542	2,759,500	3,941,300	1,081,131	468,718	1,358,893
Value.....	\$221,097	\$52,491	\$85,541	\$21,741	\$18,748	\$42,576
Beet pulp.....	\$202,070	\$32,358	\$66,673	\$45,414	\$17,500	\$40,125
Juice, sold as such.....	\$5,129			\$5,129		
Lime.....	\$2,452	\$1,907		\$545		
Fertilizers.....	\$325	\$60				\$265
All other products.....	\$38,119	\$8,834		\$1,035		\$28,250
Power:						
Number of establishments reporting.....	51	5	9	19	3	15
Total horsepower.....	40,187	13,791	8,547	9,041	1,200	7,608
Owned—						
Engines—						
Steam—						
Number.....	274	32	47	80	9	106
Horsepower.....	35,016	10,745	7,217	8,761	925	7,368
Gas and gasoline—						
Number.....	7	3	4			
Horsepower.....	40	16	24			
Water wheels—						
Number.....	6					6
Horsepower.....	200					200
Water motors—						
Number.....	58		58			
Horsepower.....	229		229			
Electric motors—						
Number.....	184	120	33	21	6	11
Horsepower.....	4,697	3,030	1,077	275	275	40
Rented—						
Electric motors—						
Number.....	2			2		
Horsepower.....	5			5		
Acreage in beets controlled by factory:						
Total—						
Acres.....	240,757	33,473	49,980	85,350	9,700	62,254
Tons.....	2,175,417	405,865	561,266	535,508	85,015	587,763
Cost.....	\$11,345,785	\$1,918,240	\$2,964,250	\$2,956,801	\$455,812	\$3,050,682
Grown directly by factory—						
Acres.....	20,484	5,419	2,392	7,653		5,020
Tons.....	169,839	57,774	28,725	41,126		42,214
Cost.....	\$864,648	\$282,569	\$135,009	\$231,192		\$215,878
Grown by tenants of factory—						
Acres.....	20,223	8,787	2,410	4,300		4,726
Tons.....	210,247	106,853	26,099	25,540		51,755
Cost.....	\$998,333	\$476,395	\$125,397	\$136,361		\$260,180
Grown by contract by other than tenants of factory—						
Acres.....	200,050	19,267	45,178	73,397	9,700	52,508
Tons.....	1,795,331	241,238	506,442	468,842	85,015	493,794
Cost.....	\$9,482,804	\$1,159,276	\$2,703,844	\$2,589,248	\$455,812	\$2,574,624

SLAUGHTERING AND MEAT PACKING

SLAUGHTERING AND MEAT PACKING.

The statistics for slaughtering and meat packing of this report relate only to the establishments engaged in the wholesale industry. At the censuses of 1890, 1900, and 1905 the statistics were segregated so as to show separate totals for establishments engaged in both slaughtering and packing and those engaged in slaughtering only. At the census of 1880 but one total was shown for the entire industry designated as "slaughtering and meat packing, not including retail butchering." At the census of 1870 statistics were presented under four classifications—"meat, cured and packed, not specified," "meat packed, beef," "meat packed, pork," and "butchering." At the census of 1860 the industry was designated as "provisions" and at 1850 as "pork and beef packing." From the classifications, therefore, it would appear that the intention at the earlier as well as the later censuses was to eliminate from the Census reports establishments engaged in retail butchering and to limit the statistics to those engaged in a wholesale business.

The line of demarcation between establishments of a character to be included in the census and those to be excluded is sometimes difficult to draw. The term "wholesale" is generally applied to an establishment

that disposes of its product to merchants and not directly to the consumer. Many butchers who dispose of the greater part of their products at retail make a practice of selling large weights to other butchers and some who slaughter almost wholly for the retail trade will at times sell at wholesale because of the perishable nature of the product. The reports of such establishments were sometimes secured and included in the statistics, although their wholesale trade might have formed only a small proportion of the year's transactions.

Under these conditions establishments enumerated at one census would possibly be omitted at a subsequent census, and the same class of establishments might not be enumerated at the same census in all sections of the country. Therefore the statistics can be accepted as representing establishments engaged wholly or largely in the wholesale trade, but not as the total for all establishments that were in any way engaged in a wholesale business.

The statistics for the 929 establishments reported at the census of 1905, together with those for similar establishments reported at each census from 1850 to 1900, are presented in Table 1.

TABLE 1.—COMBINED SLAUGHTERING AND MEAT PACKING—COMPARATIVE SUMMARY, WITH PER CENT OF INCREASE: 1850 TO 1905.

	CENSUS.							PER CENT OF INCREASE.					
	1905	1900 ¹	1890	1880	1870	1860	1850	1900 to 1905	1890 to 1900	1880 to 1890	1870 to 1880	1860 to 1870	1850 to 1860
Number of establishments.....	929	882	1,118	872	768	259	185	5.3	21.1	28.2	13.5	196.5	40.0
Capital.....	\$237,714,690	\$188,800,181	\$116,887,504	\$49,419,213	\$24,224,692	\$10,158,362	\$3,482,500	25.9	61.5	136.5	104.0	138.5	191.7
Salaried officials, clerks, etc., number.....	11,974	10,199	23,971	(¹)	(¹)	(¹)	(¹)	17.4	156.8				
Salaries.....	\$13,343,902	\$10,101,647	\$4,536,600	(¹)	(¹)	(¹)	(¹)	32.1	122.7				
Wage-earners, average number.....	74,134	68,386	43,975	27,297	8,366	5,058	3,276	8.4	55.5				
Total wages.....	\$40,326,972	\$33,392,253	\$24,304,976	\$10,508,530	\$2,553,447	\$1,019,266	\$1,231,536	20.8	37.4	131.3	311.5	150.5	217.2
Men 16 years and over.....	68,692	63,774	42,285	26,113	7,906	5,039	3,267	7.7	50.8	61.9	230.3	56.9	54.2
Wages.....	\$38,585,653	\$32,175,287	\$23,887,890	(¹)	(¹)	(¹)	(¹)	19.9	34.7				
Women 16 years and over.....	4,468	2,945	990	.....	202	19	9	51.7	197.5			963.2	111.1
Wages.....	\$1,481,453	\$853,613	\$285,554	(¹)	(¹)	(¹)	(¹)	73.6	198.9				
Children under 16 years.....	974	1,667	700	1,184	258	(¹)	(¹)	241.6	138.1	240.9	358.9		
Wages.....	\$259,866	\$363,353	\$131,532	(¹)	(¹)	(¹)	(¹)	228.5	176.3				
Miscellaneous expenses.....	\$30,631,359	\$24,029,710	\$15,716,735	(¹)	(¹)	(¹)	(¹)	27.5	52.9				
Cost of materials used.....	\$805,856,969	\$682,096,839	\$480,962,211	\$267,738,902	\$61,674,024	\$23,564,433	\$9,451,096	18.1	41.8	79.6	334.1	161.7	149.3
Value of products.....	\$913,914,624	\$783,779,191	\$561,611,668	\$303,562,413	\$75,826,500	\$29,441,776	\$11,981,642	16.6	39.6	85.0	300.3	157.5	145.7

¹ The statistics for 1900 do not agree with those published at the Twelfth Census, as it was necessary to revise the figures for Maryland and Montana to bring them into comparison with the statistics for 1905.

² Decrease.

³ Includes proprietors and firm members, with their salaries; number only reported in 1900 and 1905, but not included in this table.

⁴ Not reported separately.

⁵ Not reported.

The statistics shown in Table 1 indicate a remarkable development of the industry since 1850.¹ In every item of the statistics for 1905, except the number of children employed and their wages, an increase is shown over 1900. While the percentages of increase between 1900 and 1905 are less than those shown prior to 1900, it should be borne in mind that but five years have elapsed between 1900 and 1905, as compared with ten years between the previous censuses.

The amount of capital invested has increased \$48,914,509, or 25.9 per cent, since 1900; the total amount of wages paid, \$6,934,719, or 20.8 per cent; and the value of products, \$130,135,433, or 16.6 per cent.

Even the number of establishments, in which, owing to the growth of concentration, many industries show

¹For information concerning this development, see Special report on "Slaughtering and meat packing" Twelfth Census, Manufactures, Part III, page 387.

losses at the present census, shows a slight relative increase. It is still, however, nearly 200 short of the number reported in 1890, when the maximum for the industry was reached, a fact which would seem to indicate that this industry was among the first to undergo the process of concentration, which here seems to have already attained a relatively advanced state between 1890 and 1900.

In addition to reports for "slaughtering and meat packing, wholesale," and "slaughtering, wholesale, not including meat packing," dealt with in this report as "combined slaughtering and meat packing," the Bureau of the Census collected statistics from factories in which sausage was made as the principal product, and also from those where the manufacture of "lard, refined," was of primary importance. Table 2 is a comparative summary for 1900 and 1905 of these three branches of the meat industry.

TABLE 2.—COMBINED SLAUGHTERING AND MEAT PACKING, REFINED LARD, AND SAUSAGE—COMPARATIVE SUMMARY, BY INDUSTRIES: 1905 AND 1900.

INDUSTRY.	Census.	Number of establishments.	Capital.	SALARIED OFFICIALS, CLERKS, ETC.		WAGE-EARNERS AND WAGES.		Miscellaneous expenses.	Cost of materials used.	Value of products.
				Number.	Salaries.	Average number.	Wages.			
Total.....	1905 1900	1,230 1,099	\$241,581,827 191,544,837	12,173 10,371	\$13,560,778 10,290,390	75,840 69,763	\$41,286,183 34,083,603	\$31,095,759 24,293,162	\$817,065,740 692,806,944	\$928,166,129 796,998,548
Combined slaughtering and meat packing.	1905 1900	929 882	237,714,690 188,800,181	11,974 10,199	13,343,902 10,101,647	74,134 68,386	40,326,972 33,392,253	30,631,359 24,029,710	805,856,969 682,096,839	913,914,624 783,779,191
Lard, refined.....	1905 1900	9 19	1,162,891 1,335,759	77 54	107,579 79,675	441 499	219,387 237,930	160,448 127,500	5,640,178 7,496,845	6,128,601 8,630,901
Sausage.....	1905 1900	292 198	2,704,246 1,408,897	122 118	109,297 109,068	1,265 878	739,824 453,420	303,952 135,952	5,568,593 3,213,260	8,122,904 4,588,466

The capital reported at the census of 1905 was an increase of \$50,036,990 over 1900, and the value of products an increase of \$131,167,581. To these increases combined slaughtering and meat packing contributed 97.8 per cent and 99.2 per cent, respectively.

Table 3 is a comparative summary for 1900 and 1905 of the statistics for each of the two branches of the industry, together with the proportion each branch is of the total.

TABLE 3.—COMBINED SLAUGHTERING AND MEAT PACKING—COMPARATIVE SUMMARY, BY BRANCHES, WITH PER CENT EACH IS OF TOTAL: 1905 AND 1900.

	TOTAL.		SLAUGHTERING AND MEAT PACKING, WHOLESALE.				SLAUGHTERING, WHOLESALE, NOT INCLUDING MEAT PACKING.			
	1905	1900 ¹	1905	Per cent of total.	1900	Per cent of total.	1905	Per cent of total.	1900	Per cent of total.
Number of establishments.....	929	882	559	60.2	557	63.2	370	39.8	325	36.8
Capital.....	\$237,714,690	\$188,800,181	\$219,818,627	92.5	\$173,866,377	92.1	\$17,896,063	7.5	\$14,933,804	7.9
Salaried officials, clerks, etc., number.....	11,974	10,199	11,305	94.4	9,635	94.5	669	5.6	564	5.5
Salaries.....	\$13,343,902	\$10,101,647	\$12,458,332	93.4	\$9,452,733	93.6	\$885,570	6.6	\$648,914	6.4
Wage-earners, average number.....	74,134	68,386	69,593	93.9	64,681	94.6	4,541	6.1	3,705	5.4
Total wages.....	\$40,326,972	\$33,392,253	\$37,090,399	92.0	\$31,033,850	92.9	\$3,236,573	8.0	\$2,358,403	7.1
Men 16 years and over.....	68,692	63,774	64,171	93.4	60,095	94.2	4,521	6.6	3,679	5.8
Wages.....	\$38,585,653	\$32,175,287	\$35,355,164	91.6	\$29,822,799	92.7	\$3,230,489	8.4	\$2,352,488	7.3
Women 16 years and over.....	4,468	2,945	4,459	99.8	2,935	99.7	9	0.2	10	0.3
Wages.....	\$1,481,453	\$853,613	\$1,478,413	99.8	\$849,574	99.6	\$3,040	0.2	\$3,639	0.4
Children under 16 years.....	974	1,667	963	98.9	1,651	99.0	11	1.1	16	1.0
Wages.....	\$259,866	\$363,353	\$256,822	98.8	\$361,077	99.4	\$3,044	1.2	\$2,276	0.6
Miscellaneous expenses.....	\$30,631,359	\$24,029,710	\$28,032,248	91.5	\$22,658,444	94.3	\$2,599,111	8.5	\$1,371,266	5.7
Cost of materials used.....	\$805,856,969	\$682,096,839	\$706,230,069	87.6	\$605,223,221	88.7	\$99,626,900	12.4	\$76,873,618	11.3
Value of products.....	\$913,914,624	\$783,779,191	\$801,757,137	87.7	\$617,056,065	88.9	\$112,157,487	12.3	\$86,723,126	11.1

¹The statistics for 1900 do not agree with those published at the Twelfth Census, as it was necessary to revise the figures for Maryland and Montana to bring them into comparison with the statistics for 1905.

In 1905 the slaughtering and meat packing branch of the industry reported 60.2 per cent of the establishments, 92.5 per cent of the capital, 93.9 per cent of the wage-earners, 92 per cent of the total wages paid, and 87.7 per cent of the value of products for the combined industry. Its relative importance was slightly less in 1905 than in 1900 for every item except capital, the proportional falling off in value of products being 1.2 per cent.

A great difference in the average size of establishments in the two branches of the industry is revealed by the table, large establishments being the rule in slaughtering and meat packing, while those engaged in slaughtering exclusive of meat packing are relatively small. For the latter class the average amount of capital per establishment was \$48,368, the average number of wage-earners 12, the average amount of wages paid \$8,747, and the average value of products \$303,128. For slaughtering and meat packing the average amount of capital per establishment was \$393,235, or about eight times as great as in the other branch; the average number of wage-earners 124, or more than ten times as great; the average amount of

wages paid \$66,351, or more than seven times as great; and the average value of products \$1,434,270, or nearly five times as great.

Although the relative increases for slaughtering, not including meat packing, are larger than for slaughtering and meat packing, the absolute increases are much greater for the latter industry. For slaughtering and meat packing the absolute increase in capital was \$45,952,250, or 93.9 per cent of the increase for the combined industry, against an increase of but \$2,962,259 for slaughtering, wholesale, not including meat packing. The increase in value of products for slaughtering and meat packing amounted to \$104,701,072, or 80.5 per cent of the increase for the combined industry, \$79,266,711 in excess of the increase in this item for slaughtering, not including meat packing.

The industry by geographic divisions and states and territories.—From Table 4, which gives the statistics for the combined industry, by geographic divisions, for the censuses of 1900 and 1905, may be ascertained the distribution of the industry through the different sections of the country, as well as the relative growth in each section since the census of 1900.

TABLE 4.—COMBINED SLAUGHTERING AND MEAT PACKING—COMPARATIVE SUMMARY, BY GEOGRAPHIC DIVISIONS, WITH PER CENT OF INCREASE AND PER CENT OF TOTAL: 1905 AND 1900.

DIVISION.	Census.	Number of establishments.	CAPITAL.		WAGE-EARNERS AND WAGES.				PRODUCTS.	
			Amount.	Per cent of total.	Average number.	Per cent of total.	Wages.	Per cent of total.	Value.	Per cent of total.
United States.....	1905	929	\$237,714,690	100.0	74,134	100.0	\$40,326,972	100.0	\$913,914,624	100.0
	1900	882	\$188,800,181	100.0	68,386	100.0	\$33,392,253	100.0	\$783,779,191	100.0
Per cent of increase.....		5.3	25.9		8.4		20.8		16.6	
New England states.....	1905	66	\$14,262,815	6.0	3,495	4.7	\$1,834,926	4.5	\$43,321,437	4.7
	1900	53	\$12,771,719	6.8	3,377	4.9	\$1,618,280	4.8	\$38,363,304	4.9
Per cent of increase.....		24.5	11.7		3.5		13.4		12.9	
Middle states.....	1905	343	\$29,360,292	12.3	7,306	9.9	\$4,763,012	11.8	\$132,046,155	14.5
	1900	318	\$25,170,646	13.3	5,931	8.7	\$3,396,542	10.2	\$105,793,628	13.5
Per cent of increase.....		7.9	16.6		23.2		40.2		24.8	
Southern states.....	1905	78	\$11,066,139	4.7	3,213	4.3	\$1,457,641	3.6	\$31,380,583	3.4
	1900	72	\$3,940,221	2.1	1,423	2.1	\$584,527	1.7	\$14,340,158	1.8
Per cent of increase.....		8.3	180.9		125.8		149.4		118.8	
Central states.....	1905	308	\$127,389,701	53.6	42,956	57.9	\$22,685,237	56.3	\$505,266,122	55.3
	1900	297	\$106,345,536	56.3	41,703	61.0	\$20,168,719	60.4	\$447,978,181	57.2
Per cent of increase.....		3.7	19.8		3.0		12.5		12.8	
Western states.....	1905	51	\$47,529,844	20.0	15,325	20.7	\$8,248,965	20.5	\$170,737,664	18.7
	1900	57	\$34,884,444	18.5	14,624	21.4	\$6,835,174	20.5	\$155,054,071	19.8
Per cent of increase.....		10.5	36.2		4.8		20.7		10.1	
Pacific states.....	1905	83	\$8,105,899	3.4	1,839	2.5	\$1,337,191	3.3	\$31,062,623	3.4
	1900	85	\$5,687,615	3.0	1,328	1.9	\$789,011	2.4	\$22,249,049	2.8
Per cent of increase.....		12.4	42.5		38.5		69.5		39.6	

¹ Decrease.

From this table it is apparent that the industry is concentrated largely in the Central states, more than one-half of the total for each item being reported by this division, both for 1900 and 1905. Although the percentages of increase were comparatively small for 1905, the actual increases were large. The value of products increased \$57,387,141, which is 44.1 per cent of the aggregate increase in the United States. The Western states, although reporting barely one-third of the value of products reported by the Central states, are second in importance, and the Middle states third. The

Southern and the Pacific states occupy the least important positions in the industry, although both groups show large increases in every item. The increase in value of products was 118.8 per cent in the Southern states, and 39.6 per cent in the Pacific states. As a result of the high relative increases in these divisions, the Central states, in spite of their extremely large absolute increases, show a falling off in their percentages of the total. For 1905 they reported 55.3 per cent of the total value of products, as compared with 57.2 per cent for 1900, a relative loss of 1.9 per cent. The Western

states show a smaller loss in proportion of the total, and the New England states have also suffered a slight loss. On the other hand, the Southern states show proportional advances in all the items, that in capital being from 2.1 per cent to 4.7 per cent, a relative gain of 2.6 per cent, and that in value of products being from 1.8 per cent to 3.4 per cent, a gain of 1.6 per cent. The Middle states also show a proportional gain in every item except capital, in which there is a relative loss of 1 per cent. The largest proportional gain was that of 1.6 per cent in wages. The Pacific states have made slight proportional gains in every item. In the latter group, however, the rate of growth was not sufficiently rapid to keep it from being outstripped by the Southern states, which for 1900 reported a value of products \$7,908,891 less than that reported by the Pacific states, but for 1905 reported a value \$317,960 greater. It is interesting to note that even for 1900 the Southern states contained a larger proportion of the total average number of wage-earners than did the Pacific states, the percentages being 2.1 and 1.9, respectively; but for the total wages the positions were reversed, the percentages being 1.7 and 2.4. This variation is probably to be explained by the different conditions of the labor market in these two sections.

Table 5 is a comparative summary, by states and territories, of the statistics for the combined industry at the censuses of 1900 and 1905.

A comparison of Tables 4 and 5 reveals the interesting fact that in each geographic division more than one-half of the total value of products for the division was reported by a single state. Of the Central states, which formed the leading group, Illinois alone reported 62.8 per cent of the total value of products for the division and 51 per cent of the increase of the division in this item since 1900. There is a much more general development of the industry, however, throughout the Central states than in any other geographic division. Of the Western states, Kansas reported 56.5 per cent of the total for the division, while the increase for this state from 1900 to 1905 was \$3,280,163 in excess of the total increase for the division. In New England more than five-sixths of the total value of products was reported by Massachu-

setts; in the Middle states more than one-half by New York; and in the Pacific states approximately two-thirds by California. In the Southern states Texas, which quadrupled its value of products from 1900 to 1905, reported slightly more than one-half of the value of products and 70 per cent of the increase.

Although slaughtering and meat packing was reported from 41 states and territories, the industry was practically centralized in the following 14 states, named in the order of the value of products: Illinois, Kansas, New York, Nebraska, Missouri, Massachusetts, Pennsylvania, Iowa, Indiana, Ohio, California, Minnesota, New Jersey, and Wisconsin. For 1900 the order was as follows: Illinois, Kansas, Nebraska, New York, Indiana, Missouri, Massachusetts, Iowa, Pennsylvania, Ohio, California, New Jersey, Wisconsin, and Minnesota. The removal from Indiana since 1900 of a large establishment caused this state to fall from fifth to ninth place. The aggregate value of the slaughtering and meat packing products of these 14 states constituted 92.6 per cent of the entire production in 1905.

The 5 states showing the largest increase in value of products were Illinois, with an increase of \$29,283,805; Kansas, with \$18,963,756; Missouri, with \$16,990,248; New York, with \$15,786,905; and Texas, with \$11,926,733—a total gain for the 5 states of \$92,951,447, or 71.4 per cent of the total increase in value of products for the whole industry. Sixteen states reported a decrease in value of products, but with the exception of the losses in Indiana and Nebraska the decreases were of minor importance. The decrease in Nebraska was due to the idleness of a large plant. The explanation of the decrease in Indiana has already been given.

Illinois, by far the most important state, for 1905 reported 7.3 per cent of the establishments, 33.9 per cent of the capital, 36.4 per cent of the wage-earners, 36.1 per cent of the wages paid, and 34.7 per cent of the products for the whole country. Kansas ranks next to Illinois, with 2.4 per cent of the establishments, 10.7 per cent of the capital, 12.7 per cent of the wage-earners, 12 per cent of the wages, and 10.5 per cent of the value of products.

TABLE 5.—COMBINED SLAUGHTERING AND MEAT PACKING—COMPARATIVE SUMMARY, BY STATES AND TERRITORIES: 1905 AND 1900.

STATE OR TERRITORY.	Census.	Num- ber of estab- lish- ments.	Capital.	SALARIED OFFICIALS, CLERKS, ETC.		WAGE-EARNERS AND WAGES.		Miscella- neous ex- penses.	Cost of ma- terials used.	Value of products.
				Number.	Salaries.	Average number.	Wages.			
United States.....	1905 1900	929 882	\$237,714,690 188,800,181	11,974 10,199	\$13,343,902 10,101,647	74,134 68,386	\$40,326,972 33,392,253	\$30,631,359 24,029,710	\$805,856,969 682,096,839	\$913,914,624 783,779,191
California.....	1905 1900	59 58	4,835,578 3,913,081	287 180	350,722 254,567	1,253 925	890,658 544,659	655,782 441,210	18,618,549 13,555,445	21,795,694 15,717,712
Colorado.....	1905 1900	11 14	1,107,121 1,380,518	52 48	54,913 60,896	247 261	175,419 170,744	134,052 56,384	2,781,789 3,721,610	3,323,503 4,343,983
Connecticut.....	1905 1900	4 12	668,159 562,564	20 37	18,040 36,662	311 380	166,236 174,239	47,937 76,721	2,667,668 3,143,590	2,974,374 3,663,393
Idaho ¹	1905	3	92,557	7	9,040	10	8,160	9,067	120,431	158,975
Illinois.....	1905 1900	68 64	80,477,268 71,229,352	5,633 4,226	6,559,729 4,424,285	26,953 27,861	14,560,777 14,044,838	12,962,530 14,211,396	279,854,559 246,713,309	317,206,082 287,922,277
Indiana.....	1905 1900	42 36	7,358,006 8,860,284	195 303	247,355 314,603	3,140 3,597	1,362,552 1,565,752	591,098 530,956	26,193,351 38,608,841	29,352,593 43,862,273
Iowa.....	1905 1900	19 27	7,297,359 6,351,353	284 193	298,856 197,376	3,088 2,887	1,323,468 1,208,167	709,738 441,986	27,188,659 21,556,644	30,074,070 25,695,044
Kansas.....	1905 1900	22 14	25,332,330 16,486,177	983 1,841	983,690 1,631,866	9,392 8,117	4,836,095 3,575,049	3,724,073 2,003,771	85,145,905 67,908,960	96,375,639 77,411,883
Kentucky.....	1905 1900	22 28	1,464,299 1,326,976	46 62	44,379 51,799	472 511	243,098 214,271	126,858 105,694	4,595,466 4,444,621	5,693,731 5,177,167
Maryland.....	1905 1900	37 45	1,285,633 1,193,985	60 43	58,336 28,204	540 452	307,996 214,088	152,423 79,140	5,787,699 5,697,543	6,702,061 6,345,410
Massachusetts.....	1905 1900	42 22	12,755,034 11,314,075	403 220	392,354 250,296	2,871 2,748	1,501,085 1,318,077	830,691 591,102	33,242,733 28,040,069	37,098,502 31,633,483
Michigan.....	1905 1900	18 29	1,349,137 1,438,351	63 71	65,289 66,661	469 456	248,959 230,637	150,440 87,291	5,520,647 4,770,640	6,193,280 5,337,417
Minnesota.....	1905 1900	24 20	3,421,533 1,355,011	280 125	252,951 102,709	1,362 668	780,633 303,977	407,848 90,796	15,057,875 6,823,255	17,526,707 7,810,555
Missouri.....	1905 1900	33 37	16,425,899 7,944,033	597 242	623,129 253,775	4,218 3,102	2,369,193 1,440,742	1,869,075 364,267	54,042,087 39,108,137	60,031,133 43,040,885
New Jersey.....	1905 1900	39 41	2,335,477 1,588,389	96 100	108,701 94,080	678 558	446,054 331,825	309,541 164,281	15,679,581 12,849,902	17,238,076 14,046,217
New York.....	1905 1900	101 110	17,232,855 15,357,075	663 602	821,042 584,386	3,500 3,099	2,423,485 1,846,434	2,301,389 1,274,534	65,289,369 50,523,186	73,218,198 57,431,293
North Carolina ²	1905	3	58,389	3	3,000	20	8,160	3,936	164,895	192,223
North Dakota ³	1900	3	104,371	8	8,760	34	15,977	8,975	198,175	256,160
Ohio.....	1905 1900	88 71	6,357,135 5,355,626	316 313	293,534 266,001	2,237 1,765	1,309,021 811,398	648,940 639,008	25,022,324 17,927,953	28,729,044 20,660,780
Oklahoma ²	1905	5	121,750	1	3,500	37	21,660	10,909	236,954	287,866
Oregon.....	1905 1900	10 9	974,727 760,448	60 41	72,914 47,130	246 172	155,498 87,821	126,178 35,768	2,389,902 1,359,361	2,907,154 1,638,480
Pennsylvania.....	1905 1900	156 111	8,061,250 6,548,577	337 376	361,896 317,153	2,413 1,669	1,469,716 920,190	920,321 526,972	27,784,202 21,601,810	32,321,089 25,238,772
Rhode Island.....	1905 1900	6 7	523,142 759,850	11 16	11,280 17,636	151 209	82,058 107,104	34,022 44,736	2,290,310 2,246,780	2,499,440 2,503,466
Utah.....	1905 1900	3 8	147,664 117,027	9 6	10,260 2,472	31 42	20,950 18,653	16,595 5,940	513,543 385,353	653,314 453,456
Vermont ¹	1905	3	29,400	1	1,800	11	5,115	1,815	57,661	74,454
All other states.....	1905 1900	113 116	38,002,988 24,853,148	1,567 1,146	1,697,192 1,090,330	10,484 8,873	5,610,926 4,247,611	3,886,101 2,248,782	105,610,810 90,911,655	121,287,422 103,589,085

¹ No establishments reported in 1900.² Included in "all other states" in 1900.³ No establishments reported in 1905.⁴ Includes establishments distributed as follows: Alabama, 2; Delaware, 6; District of Columbia, 4; Florida, 1; Georgia, 4; Louisiana, 2; Maine, 11; Montana, 2; Nebraska, 8; Nevada, 1; Tennessee, 9; Texas, 10; Virginia, 15; Washington, 14; West Virginia, 7; Wisconsin, 16; Wyoming, 1.⁵ Includes establishments distributed as follows: Alabama, 2; Arkansas, 2; Delaware, 4; District of Columbia, 7; Georgia, 7; Maine, 11; Montana, 3; Nebraska, 12; New Hampshire, 1; New Mexico, 2; North Carolina, 1; Oklahoma, 2; South Carolina, 1; South Dakota, 1; Tennessee, 8; Texas, 12; Virginia, 4; Washington, 18; West Virginia, 3; Wisconsin, 13; Wyoming, 2.

Table 6 shows for the censuses from 1890 to 1905 the proportion of the total value of products reported by each of the 14 leading states in the industry.

TABLE 6.—Combined slaughtering and meat packing—per cent of total value of products, for the fourteen leading states: 1890 to 1905.

STATE.	PER CENT OF TOTAL VALUE OF PRODUCTS.		
	1905	1900	1890
United States.....	100.0	100.0	100.0
Fourteen states.....	92.6	93.7	94.7
Illinois.....	34.7	36.7	37.8
Kansas.....	10.5	9.9	8.0
New York.....	8.0	7.3	13.6
Nebraska.....	7.6	9.1	5.2
Missouri.....	6.6	5.5	3.3
Massachusetts.....	4.1	4.0	3.6
Pennsylvania.....	3.5	3.2	3.9
Iowa.....	3.3	3.3	4.2
Indiana.....	3.2	5.6	5.0
Ohio.....	3.1	2.6	3.0
California.....	2.4	2.0	1.7
Minnesota.....	1.9	1.0	0.4
New Jersey.....	1.9	1.8	3.2
Wisconsin.....	1.8	1.7	1.8

While the Central states, as shown in Table 4, reported 55.3 per cent of the total value of products, 2 of the Central states, Illinois and Missouri, together reported 41.3 per cent of the total value of products, and approximately three-fourths of the total for the division, although 5 other states in this division are included in the leading 14. In the Western states, which ranked second among the geographic divisions, reporting 18.7 per cent of the total, the industry was almost wholly confined to Kansas and Nebraska, which together reported 18.1 per cent of the total value of products for the country.

Although more than one-third of the total value of products for the industry was reported by Illinois, its

proportion of the total in 1905 was 2 per cent less than in 1900 and 3.1 per cent less than in 1890. This, however, does not indicate any actual falling off in the industry, but merely that it has failed to keep pace with the rapid growth of the industry in the country as a whole, a fact perhaps to be expected in view of the high state of development which was early reached by this state. Kansas, Missouri, Massachusetts, Ohio, California, and Minnesota show an increased proportion in 1905 as compared with either 1890 or 1900. New York, Pennsylvania, and New Jersey show larger percentages in 1905 than in 1900, but smaller than in 1890; while Nebraska has decreased relatively since 1900, although there is still a proportional increase over 1890.

The industry in cities.—Table 7 is a comparative summary, for the censuses from 1880 to 1905, for cities having a population, in 1900, of 8,000 and over, reporting products valued at over \$5,000,000 for 1905. The totals for East St. Louis, Ill., for 1905, do not agree with those shown in the general tables, as, for the purpose of making these figures comparable with those of prior censuses, the corporate limits of the city were not strictly followed. Kansas City, Kans., and South Omaha, Nebr., are included with "all other cities of this class," although they rank second and third, respectively, at the census of 1905; and likewise Cambridge, Mass., Sioux City, Iowa, Jersey City, N. J., Ottumwa, Iowa, and Cedar Rapids, Iowa—which rank fifteenth, seventeenth, eighteenth, nineteenth, and twenty-second, respectively—in order that the operations of individual establishments may not be discoverable through comparisons with the detailed tables for the branches of the industry.

TABLE 7.—COMBINED SLAUGHTERING AND MEAT PACKING—COMPARATIVE SUMMARY, FOR CITIES HAVING PRODUCTS VALUED AT OVER \$5,000,000 AT THE CENSUS OF 1905: 1880 TO 1905.

CITY.	Census.	Number of establishments.	Capital.	SALARIED OFFICIALS, CLERKS, ETC.		WAGE-EARNERS AND WAGES.		Miscellaneous expenses.	Cost of materials used.	Value of products.	Rank for 1905 and 1900.
				Number.	Salaries.	Average number.	Wages.				
United States.....	1905	929	\$237,714,690	11,974	\$13,343,902	74,134	\$40,326,972	\$30,631,359	\$805,856,969	\$913,914,624	
	1900	882	188,800,181	10,199	10,101,647	68,386	33,392,253	24,029,710	682,096,839	783,779,191	
	1890	1,118	116,887,504	13,971	14,536,600	43,975	24,304,976	15,716,735	480,962,211	561,611,668	
	1880	872	49,419,213	(²)	(²)	27,297	10,508,530	(³)	267,738,902	303,562,413	
Total, 25 selected cities ⁴	1905	424	194,394,345	9,837	11,186,210	61,412	33,371,452	25,802,341	676,012,466	762,612,773	
	1900	398	159,960,556	8,748	8,804,608	59,351	29,034,068	22,048,001	580,790,975	665,368,476	
Allegheny, Pa. ²	1905	11	1,810,039	74	90,061	613	395,351	249,468	5,405,610	6,485,182	21
	1900	8	1,497,666	52	57,800	438	233,028	111,546	3,338,805	3,996,807	25
	1890	7	140,860	13	9,750	42	17,390	7,104	233,876	294,065	
Baltimore, Md.....	1905	34	930,333	51	50,792	433	238,637	137,968	4,649,159	5,406,274	28
	1900	42	1,045,495	36	25,204	385	179,268	73,549	5,002,973	5,570,590	20
	1890	14	958,521	53	53,904	368	171,208	75,232	3,608,147	4,311,412	
	1880	6	705,000			194	85,300		2,559,662	2,742,645	
Buffalo, N. Y.....	1905	26	4,870,083	277	264,988	1,159	588,862	485,622	14,167,105	16,136,373	10
	1900	24	5,173,694	203	146,523	928	436,869	342,878	10,026,676	11,601,167	12
	1890	34	2,915,280	90	96,374	746	377,849	128,844	8,437,104	9,951,044	
	1880	6	872,500			280	170,433		3,023,924	3,441,280	
Chicago, Ill.....	1905	32	70,265,373	4,960	5,940,176	22,613	12,388,214	11,628,056	237,038,571	269,581,486	1
	1900	38	67,137,569	4,010	4,233,994	25,345	12,875,676	13,829,825	218,241,331	256,527,949	1
	1890	57	39,222,195	900	1,003,668	16,975	10,002,573	6,218,026	173,568,365	203,606,402	
	1880	70	8,455,200			7,478	3,392,748		74,546,319	85,324,371	

¹ Includes proprietors and firm members, with their salaries; number only reported in 1900 and 1905, but not included in this table.

² Not reported separately in 1880.

³ Not reported.

⁴ All cities not reported separately for 1890 and 1880.

TABLE 7.—COMBINED SLAUGHTERING AND MEAT PACKING—COMPARATIVE SUMMARY, FOR CITIES HAVING PRODUCTS VALUED AT OVER \$5,000,000 AT THE CENSUS OF 1905: 1880 TO 1905—Continued.

CITY.	Census.	Number of establishments.	Capital.	SALARIED OFFICIALS, CLERKS, ETC.		WAGE-EARNERS AND WAGES.		Miscellaneous expenses.	Cost of materials used.	Value of products.	Rank for 1905 and 1900.
				Number.	Salaries.	Average number.	Wages.				
Cincinnati, Ohio.....	1905	45	\$2,825,858	103	\$112,683	866	\$515,400	\$265,602	\$11,721,316	\$13,446,202	12
	1900	27	2,893,064	98	103,830	856	414,621	437,889	8,806,652	10,370,177	13
	1890	83	2,215,490	149	173,404	675	373,859	152,452	7,873,703	9,511,188	
	1880	49	4,074,682			1,143	338,302		10,454,991	11,614,810	
Cleveland, Ohio.....	1905	8	2,203,486	135	121,403	924	532,738	198,830	9,133,952	10,317,494	14
	1900	10	1,827,288	173	135,886	577	235,023	175,152	6,759,023	7,514,470	17
	1890	13	744,465	73	79,080	382	200,981	30,570	4,983,627	5,582,666	
	1880	12	447,000			416	192,892		4,886,771	5,427,938	
Detroit, Mich.....	1905	11	1,250,742	56	57,410	420	221,764	137,712	4,752,760	5,349,647	24
	1900	16	1,184,776	61	59,581	338	177,856	70,587	3,628,440	4,047,749	24
	1890	19	818,023	78	70,526	280	145,288	46,009	2,953,987	3,404,424	
	1880	7	485,000			147	79,067		1,413,426	1,721,231	
East St. Louis, Ill. ¹	1905	3	8,024,281	554	496,024	3,658	1,782,779	1,084,636	36,281,338	39,972,245	6
	1900	3	3,183,288	156	138,259	2,159	985,497	305,594	25,370,543	27,676,818	6
	1880	3	1,550,000			2,540	530,019		6,104,019	7,950,000	
Indianapolis, Ind.....	1905	9	6,120,562	130	186,231	2,671	1,124,075	484,136	22,233,871	24,458,810	7
	1900	7	3,807,246	136	128,834	1,943	783,226	218,989	17,400,330	18,781,442	7
	1890	8	990,220	51	48,000	827	386,472	108,015	5,408,053	6,295,975	
	1880	7	1,618,000			892	345,236		7,890,208	9,014,422	
Louisville, Ky.....	1905	13	1,391,674	45	43,929	433	228,836	124,625	4,263,949	5,286,137	25
	1900	12	1,218,426	52	45,739	449	189,417	100,312	3,828,486	4,444,978	22
	1890	12	1,272,415	33	22,967	327	101,328	124,475	2,023,501	2,555,154	
	1880	23	2,144,500			366	141,092		3,438,459	4,287,158	
Milwaukee (including Cudahy), Wis.	1905	9	4,342,107	119	165,203	1,391	682,408	552,610	13,143,047	15,394,168	11
	1900	7	3,578,690	116	140,333	1,293	530,483	385,102	11,405,186	13,045,979	9
	² 1890	9	2,291,971	43	56,728	742	358,830	96,989	8,635,671	9,704,966	
	² 1880	7	789,000			953	187,596		5,529,618	6,099,486	
New York:											
Brooklyn borough.....	1905	11	1,431,580	63	71,961	307	245,963	164,730	6,758,717	7,499,974	20
	1900	10	618,825	35	32,660	227	136,777	59,293	3,783,042	4,126,632	23
	1890	37	1,672,528	95	155,258	449	335,959	120,002	11,640,449	13,087,354	
	1880	28	1,125,000			260	194,568		7,340,450	8,010,492	
Manhattan and Bronx boroughs	1905	34	9,980,594	270	435,134	1,690	1,429,687	1,437,702	41,907,452	46,477,324	4
	1900	42	8,648,436	320	378,194	1,705	1,166,749	829,740	34,230,835	38,752,586	4
	1890	56	7,143,468	282	418,226	2,165	1,577,238	639,538	44,761,605	50,251,504	
	1880	58	1,801,000			895	575,521		27,763,577	29,297,527	
Philadelphia, Pa.....	1905	87	2,533,443	77	86,158	774	498,929	312,442	11,147,549	12,706,519	13
	1900	58	1,882,732	141	111,925	617	372,610	221,674	10,321,065	12,020,462	11
	1890	202	3,722,207	264	291,776	908	514,177	207,080	13,674,466	16,094,498	
	1880	19	1,965,625			359	165,353		7,042,781	7,869,114	
St. Joseph (including South St. Joseph), Mo. ¹	1905	6	12,334,944	391	366,299	2,913	1,573,448	1,583,103	37,626,899	42,075,116	5
	1900	5	5,200,899	131	106,001	2,216	980,749	190,550	27,645,318	29,704,973	5
	³ 1880	5	134,500			204	37,290		1,224,208	1,439,843	
St. Louis, Mo.....	1905	20	3,944,105	203	254,230	1,237	752,839	271,997	16,043,450	17,485,393	9
	1900	25	2,608,249	103	142,573	841	448,287	171,902	11,120,325	12,943,376	10
	1890	60	3,216,571	129	170,226	631	366,011	98,539	9,864,639	12,048,114	
	1880	32	1,243,000			584	269,763		7,085,909	8,424,064	
San Francisco, Cal.....	1905	29	1,236,237	89	111,107	283	247,971	145,608	7,556,245	8,994,992	16
	1900	26	2,305,362	114	177,490	532	323,931	306,408	8,622,994	9,991,599	14
	1890	25	1,591,779	86	122,090	249	198,637	226,259	5,575,801	6,670,474	
	1880	24	1,586,200			309	239,868		4,511,721	6,013,602	
Somerville, Mass. ¹	1905	4	7,216,744	236	242,648	1,521	800,258	439,858	17,164,332	18,917,495	8
	1900	4	6,801,141	45	70,618	1,435	692,999	314,036	14,233,788	15,692,242	8
	1880	3	760,840			263	122,889		3,368,396	3,702,601	
All other cities of this class ⁴	1905	32	51,682,160	2,004	2,089,773	17,506	9,123,293	6,097,636	175,017,144	196,621,942	
	1900	34	39,347,710	2,766	2,569,164	17,067	7,871,002	3,902,995	157,025,163	178,558,480	

¹ No figures available for 1890.² Does not include Cudahy for 1890 and 1880.³ Does not include South St. Joseph for 1880.⁴ Includes the following cities in order to avoid disclosing figures of individual establishments: Cambridge, Mass.; Cedar Rapids, Iowa; Jersey City, N. J.; Kansas City, Kans.; Ottumwa, Iowa; Sioux City, Iowa; South Omaha, Nebr.

The 25 cities included in Table 7 contained 45.6 per cent of all establishments engaged in slaughtering and meat packing, with 81.8 per cent of the capital, 82.8 per cent of the wage-earners, 82.8 per cent of the wages, and 83.4 per cent of the aggregate value of products. The corresponding percentages for 1900 were: Number of establishments, 45.1; capital, 84.7; wage-earners, 86.8; wages, 86.9; and value of products, 84.9. A comparison of the percentages for 1900 and 1905 shows that, although there was a slight gain

for 1905 in the number of establishments, there was a decrease in all other items.

Of the cities shown in Table 7, Chicago, Ill., ranked first, with products valued at \$269,581,486, or 35.3 per cent of the total for the 25 cities and 29.5 per cent of the total for the United States. Kansas City, Kans., was second; South Omaha, Nebr., third; New York (Manhattan and Bronx boroughs), N. Y., fourth; and St. Joseph (including South St. Joseph), Mo. fifth. These 5 cities held the same rank in 1900.

Baltimore, Md., and San Francisco, Cal., show a decrease in the value of products for 1905 as compared with 1900. The decrease in Baltimore was only 2.9 per cent, whereas that in San Francisco was 10 per cent.

The greatest percentage of increase for 1905 over 1900 was 81.7 per cent for Brooklyn borough, New York. Allegheny, Pa., had an increase of 62.3 per cent, and East St. Louis, Ill., 44.4 per cent. The greatest actual increase in value of products was in Kansas City, Kans., included in "all other cities of this class."

It will be observed that of the 25 cities presented in the table all but 3—Baltimore, Detroit, and Louisville—are situated in one of the 14 leading states shown in Table 6. The total value of products for these 3 cities is, however, relatively small, forming but 1.8 per cent of the total for the industry. If this be deducted from the total for the 25 cities, it appears that while the 14 leading states reported 92.6 per cent of the total value of products, 22 cities in these states reported 81.7 per cent, or slightly more than four-fifths, of the total, and approximately eight-ninths of the total for the states given.

It has been shown that the slaughtering and meat packing industry was concentrated mainly in a few states, and in a comparatively few cities in those states. A comparison of Table 7 with the preceding tables will bring out this fact even more forcibly. Illinois was the leading state in the industry, reporting 34.7 per cent of the total value of products; but Chicago alone reported 29.5 per cent, and together with East St. Louis, 33.9 per cent of the total. Of the \$317,206,082 reported for Illinois, \$309,553,731, or 97.6 per cent, was reported by the 2 cities named. Similarly Kansas reported 10.5 per cent of the total value of products, but more than nine-tenths of the total for the state was reported from Kansas City. The proportions for Missouri are even more striking, for out of the \$60,031,133 value of products for that state, \$59,560,509, or 99.2 per cent, was reported by St. Joseph and St. Louis. Other leading states show a similarly great concentration of the industry in one or two large cities. This follows from the nature of the industry; a slaughtering and meat packing establishment, to reach its highest development, must have the best transportation facilities both for handling live stock and distributing its products. The industry is also highly centralized in the large cities of the Central and Western states, because they are near great stock raising sections.

Materials used.—The kind, quantity, and cost of materials used, as reported for the industry at the censuses of 1890, 1900, and 1905, with the percentages of increase, are shown in Table 8. In some few cases where establishments were unable to furnish details as to quantities and values of the different materials, the total cost only being reported, a segregation was

made based upon the average prices prevailing in the localities to which such establishments belonged.

TABLE 8.—Combined slaughtering and meat packing—kind, quantity, and cost of materials used, with per cent of increase: 1890 to 1905.

KIND.	CENSUS.			PER CENT OF INCREASE.	
	1905	1900	1890	1900 to 1905	1890 to 1900
Total cost.....	\$805,856,969	\$682,096,839	\$480,962,211	18.1	41.8
Beeves slaughtered—					
Number.....	7,147,835	5,525,824	5,422,044	29.4	1.9
Cost.....	\$289,040,930	\$247,146,262	\$193,348,810	17.0	27.8
Sheep slaughtered—					
Number.....	10,875,339	9,110,172	6,178,449	19.4	47.5
Cost.....	\$44,359,804	\$36,859,832	\$24,358,179	20.3	51.3
Hogs slaughtered—					
Number.....	30,977,639	30,595,522	22,349,451	1.2	36.9
Cost.....	\$329,765,480	\$278,370,494	\$207,228,609	18.5	34.3
All other animals slaughtered.....	\$12,727,462	\$7,806,844	\$5,246,661	63.0	48.8
Dressed meat purchased.....	\$53,114,957	\$54,247,986	\$25,674,343	2.1	111.3
Fuel.....	\$4,639,315	\$2,736,131	\$1,569,396	69.6	74.3
Rent of power and heat.....	\$117,098	\$30,946	\$25,240	278.4	22.6
All other materials, including mill supplies and freight....	\$72,091,923	\$54,898,344	\$23,510,973	31.3	133.5

¹ Includes calves.

² Decrease.

The increase in the number of beeves slaughtered, as reported at the census of 1905, compared with 1900, was 1,622,011, or 29.4 per cent, while the cost increased \$41,894,668, or 17 per cent. The increase in number of cattle killed in 1900, as compared with 1890, was only 103,780, or 1.9 per cent, but the increase in cost was \$53,797,452, or 27.8 per cent. In other words, the average cost per animal increased from \$35.66 for 1890 to \$44.73 for 1900, but it decreased to \$40.44 for 1905. This decline since 1900 was due both to a lighter average weight and to a lower price per pound. The average gross weight of beeves slaughtered for 1905 was 1,047 pounds, or 22 pounds per animal less than for 1900, and the average cost per pound on the hoof was 3.9 cents for 1905, or three-tenths of a cent lower than for 1900.

The increase in the number and value of sheep slaughtered, as reported at the census of 1905, compared with 1900, was 19.4 per cent and 20.3 per cent, respectively, and there was but a slight variation between the two census periods in cost per pound or average weight. Although the number of hogs killed increased only 1.2 per cent for 1905, as compared with 1900, the value increased 18.5 per cent. For 1900 the average price per hog was \$9.10 and for 1905 it was \$10.65, an increase in price of \$1.55 per animal, and as the average gross weight decreased from 218 pounds for 1900 to 213 for 1905, the average cost per pound (gross weight) increased from 4.2 to 5 cents.

Included in the cost of "all other animals slaughtered" is that of calves, which constitutes the greater part of this item. For 1905 the cost of calves slaughtered amounted to \$12,665,557, or 99.5 per cent of this item, and for 1900, \$7,252,545, or 92.9 per cent. The

balance of this item consists in the main of the cost of poultry killed.

Comparing the figures in Table 8 for the three principal kinds of live stock slaughtered, it will be seen that both the greatest number and greatest cost were reported for hogs, while the lowest number was for beeves and the lowest cost for sheep. The greatest absolute increase in number was that of 1,765,167 in the number of sheep slaughtered, but the greatest relative increase was in the number of beeves. The lowest increase, both relative and absolute, was in the number of hogs. The largest absolute increase in cost was \$51,394,986 for hogs, which showed the smallest increase in number; but the largest relative increase in cost was for sheep, which showed the smallest actual increase. Beeves, which showed the greatest relative increase in number, showed the smallest in cost. The only form of live stock showing a consistent rate of increase from 1900 to 1905 in both number and cost was sheep, for which there was a variation of only nine-tenths of 1 per cent in the respective increases, against 17.3 per cent and 12.4 per cent for hogs and beeves, respectively.

Although the cost of fuel shows a relative increase smaller by 3.7 per cent at the census of 1905 than at

that of 1900, the actual increase for the five-year period exceeded that for the previous decade by \$736,449. The amount paid for rent of power and heat also shows the large relative advance of 278.4 per cent, although the total for this item remained comparatively insignificant.

Practically the entire cost of rented power and heat represents electric power current purchased from outside sources, and the increase would seem to indicate a gradually increasing use of electrical machinery and appliances. By a reference to Tables 12 and 13 it may be seen that for 1905 the slaughtering and meat packing branch of the industry paid 94 per cent of the total cost of fuel and 89.6 per cent of the cost of rented power and heat.

Besides mill supplies and freight, the item "all other materials" includes cost of boxes, cans, and cases, and also cost of materials required in the utilization of the "waste."

The total gross weight and the total net dressed weight, with the percentage it formed of the gross weight, and the average weight per animal for all beeves, sheep, and hogs slaughtered, as reported at the censuses of 1900 and 1905, are shown in Table 9.

TABLE 9.—COMBINED SLAUGHTERING AND MEAT PACKING—NUMBER AND GROSS AND NET WEIGHT OF ANIMALS SLAUGHTERED: 1905 AND 1900.

	BEEVES.		SHEEP.		HOGS.	
	1905	1900	1905	1900	1905	1900
Number slaughtered.....	7,147,835	5,525,824	10,875,339	9,110,172	30,977,639	30,595,522
Gross weight on hoof, pounds.....	7,485,407,944	5,908,165,706	930,168,367	764,269,802	6,586,349,782	6,676,709,331
Average weight, pounds.....	1,047	1,069	86	84	213	218
Net weight dressed, pounds.....	4,066,264,877	3,222,733,617	464,872,621	389,132,646	5,048,832,850	5,203,280,487
Percentage of gross weight.....	54.3	54.5	50.0	50.9	76.6	77.9

From Table 9 it is seen that the average weight of beeves and hogs was less for 1905 than for 1900, while that for sheep was 2 pounds more. For each class of animals the net dressed weight forms a slightly smaller percentage of the gross weight.

Products.—A comparative summary of the quantities and values of the various products of slaughtering and meat packing establishments at the censuses of 1890, 1900, and 1905, with the percentages of increase, is given in Table 10. In the case of establishments which gave only the total value of products a segregation was made to show the quantities and values of the different kinds, as was done for materials used, upon the basis of the average prices prevailing in the localities to which such establishments belonged.

The value of all products increased \$222,167,523, or 39.6 per cent, for 1900 over 1890, and \$130,135,433, or

16.6 per cent, for 1905 over 1900. The increase in the value of "all other products," which amounted to \$36,323,234, or 57.7 per cent, at the census of 1905, as compared with that of 1900, constituted 27.9 per cent, or more than one-fourth of the increase in value of all products, and that for beef, sold fresh, which was \$36,263,077, or 17.2 per cent for the period, constituted also 27.9 per cent.

As a basis of comparison for the censuses shown in Table 10 the quantity is preferable to the value of products, both because of the fluctuations from year to year in the wholesale selling price and on account of the variations in the method of reporting value of products by establishments engaged in this industry, some of which used the cost of production as a basis for reporting the value of output, others the selling value, and still others, the factory value.

MANUFACTURES.

TABLE 10.—COMBINED SLAUGHTERING AND MEAT PACKING—KIND, QUANTITY, AND VALUE OF PRODUCTS, WITH PER CENT OF INCREASE: 1890 TO 1905.

KIND.	CENSUS.			PER CENT OF INCREASE.		KIND.	CENSUS.			PER CENT OF INCREASE.	
	1905	1900	1890	1900 to 1905	1890 to 1900		1905	1900	1890	1900 to 1905	1890 to 1900
Total value.....	\$913,914,624	\$783,779,191	\$561,611,668	16.6	39.5	Total value—Con.					
Beef, sold fresh—						Refined lard—					
Pounds.....	3,748,055,377	2,917,653,476	2,708,319,900	28.5	7.7	Pounds.....	1,048,362,039	890,937,757	536,485,829	17.7	66.1
Value.....	\$247,096,724	\$210,833,647	\$152,591,963	17.2	38.2	Value.....	\$74,116,991	\$52,586,968	\$33,401,563	40.9	57.4
Beef, canned—						Neutral lard—					
Pounds.....	98,663,931	112,443,021	133,428,456	12.3	15.7	Pounds.....	120,724,361	128,844,082	104,986,465	16.3	22.7
Value.....	\$7,697,815	\$9,166,931	\$8,950,582	16.0	2.4	Value.....	\$8,423,973	\$8,553,266	\$6,740,246	11.5	26.9
Beef, salted and cured—						Oleomargarine oil—					
Pounds.....	136,896,697	137,588,503	576,289,731	10.5	176.1	Gallons.....	19,454,799	19,111,120	16,600,652	1.8	15.1
Value.....	\$8,107,952	\$9,661,754	\$23,318,414	16.1	58.6	Value.....	\$10,201,911	\$11,482,542	\$12,202,117	11.2	5.9
Mutton, sold fresh—						Other oils—					
Pounds.....	460,754,244	400,812,014	267,353,788	15.0	49.9	Gallons.....	4,893,133	\$240,569	4,427,555	140.6	86.1
Value.....	\$36,880,455	\$32,681,457	\$21,998,023	12.8	48.6	Value.....	\$2,595,951	\$3,438,358	\$3,590,012	24.5	14.2
Pork, sold fresh—						Fertilizers—					
Pounds.....	1,224,932,910	1,222,007,411	1,125,648,541	0.2	8.6	Tons.....	211,137	168,505	115,400	25.3	46.0
Value.....	\$91,749,323	\$83,934,324	\$66,719,585	9.3	25.8	Value.....	\$4,397,626	\$3,300,042	\$2,343,777	33.3	40.8
Pork, salted—						Hides—					
Pounds.....	1,558,886,256	1,371,384,591	1,264,956,237	13.7	8.4	Number.....	8,039,204	6,249,414	5,346,919	28.6	16.9
Value.....	\$116,626,710	\$88,363,629	\$77,737,470	32.0	13.7	Pounds.....	456,443,857	335,968,207	384,481,326	35.9	112.6
Hams, smoked bacon, sides, and shoulders—						Value.....	\$44,206,107	\$33,883,026	\$21,245,782	30.5	59.5
Pounds.....	1,364,015,706	1,767,313,787	1,195,616,589	122.8	47.8	Wool—					
Value.....	\$132,210,611	\$148,171,166	\$93,396,949	10.8	58.6	Pounds.....	16,377,333	13,176,686	11,127,851	24.3	18.4
Sausage, fresh and cured—						Value.....	\$5,229,521	\$3,534,439	\$2,009,133	56.8	66.0
Pounds.....	324,416,039	290,987,019	149,281,545	11.5	94.9	All other products, including custom work.....	\$90,316,623	\$62,993,389	\$26,067,717	57.7	141.7
Value.....	\$25,056,331	\$21,394,253	\$9,298,335	17.1	130.1						

¹ Decrease.

Although beef, sold fresh, was the foremost specific product, the hog products as a class, exceeded the beef products, as shown by the following tabular state-

ment, which gives the total quantities of pork, beef, and mutton products, fresh, canned, salted, cured, and smoked, for the several census years:

Combined slaughtering and meat packing—quantity of selected products, with per cent of total, and per cent of increase: 1890 to 1905.

KIND.	1905		1900		1890		PER CENT OF INCREASE.	
	Pounds.	Per cent of total.	Pounds.	Per cent of total.	Pounds.	Per cent of total.	1900 to 1905	1890 to 1900
Total.....	8,592,205,121	100.0	7,929,202,803	100.0	7,271,613,302	100.0	8.4	9.0
Pork, fresh and salted, and hams, bacon, etc.....	4,147,834,872	48.3	4,360,705,789	55.0	3,586,221,367	49.3	14.9	21.6
Beef, fresh, canned, salted, and cured.....	3,983,616,005	46.4	3,167,685,000	39.9	3,418,038,147	47.0	25.8	17.3
Mutton.....	460,754,244	5.3	400,812,014	5.1	267,353,788	3.7	14.9	49.9

¹ Decrease.

These products in the aggregate show a progressive increase, although beef decreased in 1900, as compared with 1890, and pork for 1905, as compared with 1900. The increase is relatively the greatest for mutton, which constituted 5.3 per cent of the total for 1905 and only 3.7 per cent in 1890. The quantities of pork and beef bore practically the same proportion to each other for 1905 as in 1890, beef forming 49 per cent of the combined pork and beef products for 1905 and 48.8 in 1890; in 1900 it constituted but 42.1 per cent.

The decrease in canned beef and in salted and cured beef that was marked in the decade 1890 to 1900 continued both as to quantity and value, while for fresh beef was shown the heaviest proportionate increase

in quantity of any of the chief products. The increase in mutton both as to quantity and value was steady and fairly uniform, with but a slight decrease in average value—from 8.2 cents per pound in 1890 to 8 cents for 1905.

Of the distinctive hog products, salt pork exceeded both that sold fresh, or smoked and cured in the form of hams, bacon, sides, and shoulders for 1905 and 1890, whereas in 1900 the products smoked and cured in the form of hams, bacon, etc., exceeded both salt pork and fresh pork. The percentage that each class of hog products bore to the total at the several censuses and the average value per pound is shown by the following tabular statement:

	1905		1900		1890	
	Per cent.	Average value per pound (cents).	Per cent.	Average value per pound (cents).	Per cent.	Average value per pound (cents).
Hog products.....	100.0	.....	100.0	.....	100.0	.....
Pork, sold fresh.....	29.5	7.5	28.0	6.9	31.4	5.9
Pork, salted.....	37.6	7.5	31.5	6.4	35.3	6.1
Hams, smoked bacon, sides, and shoulders.....	32.9	9.7	40.5	8.4	33.3	7.8

There was a decrease of 403,298,081 pounds in the quantity of hams, smoked bacon, sides, and shoulders reported at the census of 1905, compared with 1900. This is in part accounted for by the decrease of 242,862,782 pounds in the exports of hams and bacon for 1905, as compared with 1900.

In addition to the sausage made in slaughtering and meat packing establishments, there was also produced sausage of a value of \$8,122,904 for 1905 by factories in which the manufacture of sausage was the principal business, making a total of \$33,179,235 as the value of products of this commodity.

Likewise a considerable quantity of refined lard was manufactured by establishments not engaged in slaughtering and meat packing. The value of this lard as reported at the census of 1905 was \$6,128,601, making the total value of products of refined lard \$80,245,592. The figures for neutral lard show a loss for 1905, as compared with 1900, in both quantity and value, although the average value per pound advanced slightly at each census—from 6.4 cents in 1890 to 7 cents for 1905.

There was a slight increase in quantity of oleomargarine oil reported at the census of 1905 compared with 1900, accompanied by a decrease in value, so that the average value per gallon fell from 60.1 cents for 1900 to 52.4 cents for 1905. In 1890 the average value per gallon was 73.5 cents. Other oils showed

a large decrease for 1905, compared with 1900; the average value per gallon for 1905 was 53.1 cents, compared with 41.7 cents in 1900 and 81.1 cents in 1890.

The quantity of fertilizers produced for 1905 increased 42,632 tons, or 25.3 per cent, over 1900, and the value increased \$1,097,584, or 33.3 per cent, while the average value per ton increased from \$19.58 in 1900 to \$20.83 for 1905. This increase reflects the practice which is growing among slaughterers and meat packers of manufacturing complete fertilizers.

Since 1900 there has been a substantial increase in the number, pounds, and total value of hides, which include beef hides and calfskins. For 1900 the average weight of hides was 53.8 pounds, and at the census of 1905, 56.8 pounds. The average value per pound fell from 10.1 cents in 1900 to 9.7 cents at the census of 1905.

The increase in the value of wool reported at the census of 1905 was \$1,895,082, or 56.8 per cent, over 1900, and in quantity it was 3,200,647 pounds, or 24.3 per cent. The average value per pound increased from 25.3 cents to 31.9 cents. By reference to Table 14 it will be seen that the total number of sheep pelts reported is greater than the number of sheep slaughtered. This is due to the fact that a few establishments bought pelts.

The item "all other products" includes the value of all veal products, fertilizer materials, amounts received for custom or contract work, and all other products not specified. A detailed statement of materials and products for 1905, by states and territories, will be found in Tables 12 to 14, inclusive.

Imports and exports.—The quantity and value of the imports and exports of all slaughtering and meat packing products from 1900 to 1905—years ending June 30—are shown in Table 11.

TABLE 11.—KIND, QUANTITY, AND VALUE OF SLAUGHTERING AND MEAT PACKING PRODUCTS IMPORTED, AND OF DOMESTIC AND FOREIGN SLAUGHTERING AND MEAT PACKING PRODUCTS EXPORTED: 1900 TO 1905.¹

KIND.	1905	1904	1903	1902	1901	1900
IMPORTS.						
Total value.....	\$22,949,168	\$18,355,402	\$24,247,683	\$24,078,500	\$20,524,190	\$26,145,974
Bones, horns, and hoofs, unmanufactured.....	\$920,505	\$536,366	\$019,239	\$082,034	\$074,368	\$830,063
Bristles, crude, not sorted, bunched, or prepared—						
Pounds.....	8,122	11,241	34,239	40,537	51,539	27,140
Value.....	\$4,054	\$10,976	\$13,069	\$28,446	\$22,310	\$22,330
Bristles, sorted, bunched, or prepared—						
Pounds.....	2,461,464	2,576,615	3,009,806	1,972,572	1,633,036	2,503,018
Value.....	\$2,366,444	\$2,356,325	\$2,641,535	\$2,018,885	\$1,707,887	\$2,130,537
Glue—						
Pounds.....	7,439,735	5,798,330	5,560,616	4,787,762	4,540,951	5,577,082
Value.....	\$701,847	\$308,546	\$062,077	\$477,036	\$473,341	\$537,492
Grease and oils.....	\$1,170,514	\$1,157,923	\$876,246	\$981,494	\$756,453	\$779,666
Hide cuttings, raw, and other glue stock.....	\$1,120,070	\$874,483	\$834,421	\$606,439	\$1,057,931	\$1,223,521
Hides of cattle—						
Pounds.....	113,177,357	85,370,168	131,640,325	148,627,907	129,174,624	163,865,165
Value.....	\$14,949,628	\$10,989,035	\$16,159,902	\$17,474,039	\$14,647,413	\$19,408,217
Meat products—						
Meat and meat extracts.....	\$074,441	\$814,341	\$719,250	\$464,745	\$407,003	\$365,589
All other.....	\$52,223	\$30,619	\$706,802	\$380,463	\$54,667	\$105,726
Sausages, bologna.....	\$147,119	\$121,143	\$111,647	\$109,791	\$80,605	\$95,944
Sausage casings.....	\$836,323	\$885,645	\$963,495	\$754,588	\$642,212	\$646,889

¹Bureau of Statistics, Department of Commerce and Labor, Statistical Abstract of the United States: 1905.

TABLE 11.—KIND, QUANTITY, AND VALUE OF SLAUGHTERING AND MEAT PACKING PRODUCTS IMPORTED, AND OF DOMESTIC AND FOREIGN SLAUGHTERING AND MEAT PACKING PRODUCTS EXPORTED: 1900 TO 1905—Continued.

KIND.	1905	1904	1903	1902	1901	1900
EXPORTS, DOMESTIC.						
Total value.....	\$170,368,672	\$177,424,776	\$179,506,102	\$196,825,960	\$192,477,278	\$179,950,612
Bones, hoofs, horns and horn tips, strips, and waste.....	\$181,203	\$208,523	\$193,817	\$163,180	\$218,680	\$199,104
Glue—						
Pounds.....	2,824,202	2,656,057	2,569,164	2,907,632	2,703,400	2,349,014
Value.....	\$279,534	\$258,511	\$253,768	\$284,413	\$284,447	\$225,844
Grease, grease scraps, and all soap stock.....	\$3,710,907	\$3,311,777	\$2,926,565	\$2,610,925	\$3,339,948	\$2,944,322
Hair, and manufactures of.....	\$778,471	\$724,514	\$616,133	\$633,337	\$674,881	\$676,688
Hides and skins, other than fur—						
Pounds.....	10,268,722	32,727,643	12,859,549	9,372,747	11,161,749	7,486,256
Value.....	\$1,051,641	\$3,246,887	\$1,224,409	\$906,504	\$1,064,952	\$804,674
Oil, lard—						
Gallons.....	260,797	376,826	356,658	460,035	766,783	738,724
Value.....	\$154,409	\$244,499	\$306,334	\$327,794	\$438,645	\$337,260
Meat products:						
Beef products—						
Beef, canned—						
Pounds.....	66,688,568	57,468,338	76,307,114	66,645,838	53,445,521	55,553,745
Value.....	\$6,588,958	\$5,882,888	\$7,916,928	\$6,646,130	\$5,307,501	\$5,233,982
Beef, fresh—						
Pounds.....	236,486,568	299,579,671	254,795,963	301,824,473	351,748,333	329,078,609
Value.....	\$22,138,365	\$26,841,586	\$25,013,323	\$29,045,056	\$31,851,361	\$29,643,830
Beef, salted or pickled—						
Pounds.....	55,934,705	57,584,710	52,801,220	48,632,727	55,312,632	47,306,513
Value.....	\$3,095,304	\$3,260,475	\$3,814,671	\$3,031,027	\$3,145,219	\$2,697,340
Beef, other, cured—						
Pounds.....	136,476	269,112	1,126,032	818,382	789,285	2,319,165
Value.....	\$14,057	\$20,542	\$102,184	\$72,836	\$72,677	\$197,051
Tallow—						
Pounds.....	63,636,992	76,924,174	27,368,924	34,065,758	77,166,889	89,030,943
Value.....	\$3,022,173	\$3,801,302	\$1,623,852	\$1,924,577	\$3,848,561	\$4,398,204
Hog products—						
Bacon—						
Pounds.....	262,246,635	249,665,941	207,336,000	383,150,624	456,122,741	512,153,729
Value.....	\$25,428,961	\$24,446,752	\$22,178,525	\$35,449,797	\$37,499,026	\$38,975,915
Hams—						
Pounds.....	203,458,724	194,948,864	214,183,365	227,653,232	216,571,803	196,414,412
Value.....	\$21,562,204	\$22,293,867	\$25,712,633	\$25,222,744	\$22,842,778	\$20,416,367
Pork, canned—						
Pounds.....	10,254,239	9,479,312	13,590,897	9,603,882	8,945,594	8,496,074
Value.....	\$993,394	\$963,321	\$1,369,687	\$832,910	\$708,381	\$658,402
Pork, fresh—						
Pounds.....	14,946,284	18,633,820	20,966,113	44,171,674	30,728,586	25,946,905
Value.....	\$1,291,794	\$1,669,818	\$2,035,491	\$3,652,464	\$2,424,537	\$1,925,772
Pork, salted or pickled—						
Pounds.....	118,887,189	112,224,861	95,287,374	115,896,275	138,643,611	133,199,683
Value.....	\$9,412,034	\$9,527,388	\$9,959,762	\$10,117,562	\$9,926,633	\$8,243,797
Lard—						
Pounds.....	610,238,899	561,302,643	490,755,821	556,840,222	611,357,514	661,813,663
Value.....	\$47,243,181	\$46,347,520	\$50,854,504	\$52,375,864	\$46,560,148	\$41,939,164
Lard compounds and substitutes for (cottonseed, lardine, etc.) ¹ —						
Pounds.....	61,215,187	53,603,545	46,130,004	36,201,744	23,359,966	25,852,685
Value.....	\$3,613,235	\$3,581,813	\$3,607,542	\$2,687,653	\$1,449,878	\$1,475,064
Mutton—						
Pounds.....	640,837	465,255	6,144,020	430,351	691,121	773,760
Value.....	\$52,503	\$40,618	\$532,476	\$37,067	\$46,643	\$64,313
Oleo, the oil—						
Pounds.....	145,228,245	165,183,839	126,010,339	138,546,088	161,651,413	146,739,681
Value.....	\$11,485,145	\$12,873,558	\$11,981,888	\$12,254,969	\$11,846,373	\$10,503,856
Oleomargarine (imitation butter)—						
Pounds.....	7,863,164	6,137,251	7,645,652	5,721,254	4,990,699	4,256,067
Value.....	\$711,038	\$605,874	\$798,273	\$601,521	\$484,501	\$416,544
Sausage and sausage meats—						
Pounds.....	6,061,508	5,562,349	5,264,648	7,137,297	9,799,106	.....
Value.....	\$671,241	\$602,528	\$585,088	\$726,437	\$923,974	.....
Sausage casings.....	\$2,646,868	\$2,353,167	\$1,964,524	\$1,795,044	\$2,778,854	\$2,307,571
All other meat products—						
Canned.....	\$1,974,693	\$2,254,235	\$1,831,940	\$1,801,385	\$1,556,671	\$1,724,064
All other.....	\$2,267,359	\$2,062,813	\$2,101,785	\$3,624,764	\$3,212,009	\$3,941,394
EXPORTS, FOREIGN.						
Total value.....	\$303,372	\$356,981	\$486,541	\$461,867	\$480,962	\$332,724
Bones, horns, and hoofs, unmanufactured.....	\$5,957	\$5,391	\$4,282	\$1,224	\$7,680	\$1,315
Bristles, crude, not sorted, bunched, or prepared—						
Pounds.....	209	2,645	.....	98	.....	446
Value.....	\$262	\$1,618	.....	\$13	.....	\$220
Bristles, sorted, bunched, or prepared—						
Pounds.....	79,043	42,522	43,850	23,127	62,416	42,154
Value.....	\$42,171	\$18,958	\$27,472	\$17,568	\$27,109	\$21,952
Glue—						
Pounds.....	163,124	4,122	10,991	11,067	18,701	3,359
Value.....	\$20,358	\$559	\$1,051	\$1,109	\$2,780	\$245
Grease and oils.....	\$9,098	\$8,853	\$14,521	\$7,605	\$10,935	\$3,689
Sausages, bologna.....		\$24	.....	.....	\$10	\$28
Meat products:						
Meats and meat extracts.....	\$5,222	\$37,862	\$150,675	\$2,922	\$17,392	\$2,834
All other.....	\$3,360	\$3,077	\$2,582	\$20,755	\$4,756	\$4,545
Hides of cattle—						
Pounds.....	1,554,076	2,056,172	2,027,507	3,878,416	3,213,955	2,330,290
Value.....	\$216,484	\$279,318	\$285,088	\$403,148	\$407,678	\$296,478
Hide cuttings.....	\$460	\$1,321	\$870	\$7,523	\$2,622	\$1,408

¹Includes stearin.

In 1900 the exigencies of the Boer War required the purchase by the United Kingdom of large supplies of meat; this demand did not exist for 1905. The decrease in exports of some of the principal meat products from 1900 to 1905, shown in Table 11, is attributable to this fact.

Canned and salted or cured beef showed an increased exportation both in quantity and value. There was also an increase in the value of exports of salted or pickled pork and refined lard.

The greatest quantity and value of the principal meat products shown in the table went to the United Kingdom. Japan was second in the quantity and

value of canned beef and British Africa was third. Practically all of the fresh beef and the fresh pork was taken by the United Kingdom. Germany was second in imports of salted or pickled beef. British North America was second in the quantity and value of salted or pickled pork received and British West Indies the third. Belgium was, next to the United Kingdom, the best purchaser of bacon and hams, Germany being third in bacon, and Cuba third in hams.

The detailed statistics for each branch of the industry, and for the industry as a whole, are presented in Tables 12, 13, and 14, by states and territories.

MANUFACTURES.

TABLE 12.—SLAUGHTERING AND MEAT PACKING, WHOLESALE—DETAILED

	United States.	California.	Colorado.	Delaware.	District of Columbia.	Georgia.
1 Number of establishments.....	559	27	7	5	3	3
2 Capital, total.....	\$219,818,627	\$3,475,730	\$971,874	\$142,977	\$280,100	\$219,800
3 Land.....	\$13,427,171	\$594,881	\$24,900	\$13,000	\$125,500	\$39,000
4 Buildings.....	\$38,370,740	\$754,081	\$236,560	\$54,000	\$51,000	\$27,000
5 Machinery, tools, and implements.....	\$27,770,453	\$373,937	\$84,100	\$17,100	\$17,100	\$52,800
6 Cash and sundries.....	\$140,250,263	\$1,752,831	\$626,314	\$58,877	\$86,500	\$101,000
7 Proprietors and firm members.....	491	19	1	0	1	3
8 Salaried officials, clerks, etc.:.....						
9 Total number.....	11,305	212	48	5	13	1
10 Total salaries.....	\$12,458,332	\$252,862	\$50,993	\$4,212	\$18,812	\$600
11 Officers of corporations—						
12 Number.....	372	10	3		3	
13 Salaries.....	\$1,041,176	\$32,620	\$4,800		\$5,500	
14 General superintendents, managers, clerks, etc.—						
15 Total number.....	10,933	202	45	5	10	1
16 Total salaries.....	\$11,417,156	\$220,242	\$46,193	\$4,212	\$13,312	\$600
17 Men—						
18 Number.....	10,026	189	42	4	8	1
19 Salaries.....	\$10,852,756	\$212,774	\$45,293	\$3,848	\$12,480	\$600
20 Women—						
21 Number.....	907	13	3	1	2	
22 Salaries.....	\$564,400	\$7,468	\$900	\$364	\$832	
23 Wage-earners, including pieceworkers, and total wages:						
24 Greatest number employed at any one time during the year.....	86,128	1,184	265	56	109	127
25 Least number employed at any one time during the year.....	47,890	849	215	42	73	45
26 Average number.....	69,593	983	225	47	93	63
27 Total wages.....	\$37,090,399	\$650,351	\$158,330	\$25,933	\$69,108	\$24,508
28 Men 16 years and over—						
29 Average number.....	64,171	962	225	47	93	59
30 Wages.....	\$35,355,164	\$643,713	\$158,330	\$25,933	\$69,108	\$23,296
31 Women 16 years and over—						
32 Average number.....	4,459	14				2
33 Wages.....	\$1,478,413	\$4,700				\$760
34 Children under 16 years—						
35 Average number.....	963	7				2
36 Wages.....	\$256,822	\$1,938				\$452
37 Average number of wage-earners, including pieceworkers, employed during each month:						
38 Men 16 years and over—						
39 January.....	68,875	897	222	49	108	62
40 February.....	66,277	918	224	49	74	62
41 March.....	64,736	872	220	48	76	58
42 April.....	62,602	884	212	47	79	54
43 May.....	63,513	892	203	45	83	51
44 June.....	65,334	892	213	42	87	52
45 July.....	52,326	888	209	41	91	54
46 August.....	53,813	982	215	42	96	59
47 September.....	62,420	1,084	244	46	101	56
48 October.....	67,054	1,069	241	51	106	64
49 November.....	70,322	1,096	252	53	107	70
50 December.....	72,780	1,070	245	51	108	66
51 Women 16 years and over—						
52 January.....	4,607	14				
53 February.....	4,472	14				
54 March.....	4,491	12				
55 April.....	4,389	12				
56 May.....	4,512	15				
57 June.....	4,595	14				
58 July.....	2,577	16				
59 August.....	2,889	12				
60 September.....	4,310	11				24
61 October.....	5,399	11				
62 November.....	5,552	12				
63 December.....	5,715	25				
64 Children under 16 years						
65 January.....	935	7				3
66 February.....	897	6				3
67 March.....	875	7				3
68 April.....	886	7				2
69 May.....	915	6				2
70 June.....	1,010	6				2
71 July.....	878	6				2
72 August.....	932	7				
73 September.....	1,122	8				
74 October.....	1,034	8				5
75 November.....	1,021	8				
76 December.....	1,051	8				
77 Miscellaneous expenses, total.....	\$28,032,248	\$492,702	\$121,050	\$11,068	\$20,920	\$6,650
78 Rent of works.....	\$200,540	\$10,383	\$300	\$2,964	\$1,200	
79 Taxes.....	\$899,943	\$13,481	\$6,370	\$1,117	\$605	\$1,146
80 Rent of offices, interest, insurance, and all other sundry expenses not hitherto included.....	\$26,827,146	\$468,838	\$114,380	\$6,987	\$17,295	\$5,504
81 Contract work.....	\$11,619				\$1,820	
82 Materials used, total cost.....	\$706,230,069	\$10,324,710	\$2,405,872	\$476,830	\$475,055	\$187,408
83 Animals slaughtered—						
84 Bees.....						
85 Number.....	5,981,724	113,410	23,039	3,255	2,080	3,800
86 Cost.....	\$233,516,420	\$4,417,539	\$788,374	\$102,750	\$83,200	\$66,500
87 Sheep—						
88 Number.....	7,011,797	377,012	28,010	2,100	1,000	900
89 Cost.....	\$27,759,260	\$1,325,855	\$103,357	\$10,800	\$4,000	\$1,825
90 Hogs.....						
91 Number.....	28,627,068	257,926	106,941	18,790	18,200	18,400
92 Cost.....	\$313,326,071	\$2,368,275	\$1,289,780	\$210,000	\$118,300	\$96,650
93 Calves—						
94 Number.....	781,954	13,841	3,458	500	780	1,800
95 Cost.....	\$5,816,351	\$154,225	\$27,080	\$6,350	\$5,460	\$6,300
96 All other animals.....	\$53,405					
97 Dressed meat, purchased fresh or partially cured (to be manufactured).....	\$52,978,200	\$1,439,004	\$135,200	\$77,640	\$210,600	
98 Fuel.....	\$4,359,332	\$63,795	\$23,271	\$2,822	\$7,085	\$11,632
99 Rent of power and heat.....	\$104,906	\$11,839	\$1,100	\$285		
100 Mill supplies.....	\$542,379	\$5,679	\$5,679	\$286	\$759	\$586
101 All other materials.....	\$46,526,047	\$514,545	\$36,700	\$3,562	\$25,980	\$3,915
102 Freight.....	\$1,247,620	\$23,954		\$2,355	\$19,671	

SLAUGHTERING AND MEAT PACKING.

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SUMMARY, BY STATES AND TERRITORIES: 1905.

Idaho.	Illinois.	Indiana.	Iowa.	Kansas.	Kentucky.	Maryland.	Massachusetts.	Michigan.	Minnesota.	Missouri.	Nebraska.	
3	59	28	13	17	16	29	13	8	14	25	6	1
\$92,557	\$80,052,168	\$7,114,431	\$7,208,199	\$24,988,794	\$1,450,264	\$1,262,102	\$11,131,419	\$1,252,767	\$3,280,383	\$16,347,439	\$20,592,542	2
\$11,846	\$3,941,072	\$300,768	\$139,000	\$1,142,192	\$42,048	\$62,253	\$941,200	\$103,050	\$178,570	\$518,564	\$828,410	3
\$23,546	\$12,399,232	\$1,451,042	\$1,798,008	\$4,366,142	\$143,876	\$213,371	\$2,099,457	\$208,816	\$529,865	\$2,578,590	\$3,491,401	4
\$10,500	\$9,419,338	\$983,593	\$881,113	\$3,269,031	\$221,300	\$148,230	\$1,179,263	\$104,950	\$532,075	\$1,846,836	\$2,737,706	5
\$46,671	\$54,292,526	\$4,379,028	\$4,390,078	\$16,211,429	\$1,043,040	\$838,248	\$6,911,499	\$835,951	\$2,039,873	\$11,403,449	\$13,535,025	6
2	46	22	13	13	22	40	7	7	18	14	7	7
7	5,614	181	278	960	46	59	304	57	267	595	869	8
\$9,040	\$6,539,145	\$234,455	\$296,046	\$961,455	\$44,379	\$58,024	\$270,571	\$55,729	\$241,581	\$620,129	\$936,340	9
4	55	18	19	10	5	6	12	3	3	26	7	10
\$5,500	\$209,618	\$42,950	\$51,500	\$52,755	\$9,917	\$8,580	\$40,791	\$6,500	\$6,000	\$58,045	\$48,915	11
3	5,559	163	259	950	41	53	292	54	264	569	862	12
\$3,540	\$6,329,527	\$191,505	\$244,546	\$908,730	\$34,462	\$49,444	\$229,780	\$49,229	\$235,581	\$562,084	\$887,425	13
3	5,116	154	234	882	40	49	260	46	243	529	803	14
\$3,540	\$6,034,983	\$187,629	\$231,969	\$865,615	\$34,150	\$46,992	\$212,608	\$45,664	\$223,759	\$536,104	\$844,235	15
443	9	25	68	1	4	32	8	21	40	59	16	16
\$294,544	\$3,876	\$12,577	\$43,115	\$312	\$2,452	\$17,172	\$3,565	\$11,822	\$25,980	\$43,190	17	17
10	33,875	3,450	4,070	11,235	601	544	2,690	458	1,869	5,621	6,717	18
10	13,792	2,486	2,234	7,793	376	463	2,266	391	600	3,542	3,542	19
10	26,683	3,067	3,055	9,259	462	512	2,333	420	1,320	4,156	5,585	20
\$8,160	\$14,392,274	\$1,321,548	\$1,302,191	\$4,757,253	\$238,962	\$292,802	\$1,165,205	\$217,342	\$756,293	\$2,334,025	\$3,156,918	21
10	23,903	2,736	2,788	8,251	461	508	2,288	419	1,288	4,068	5,200	22
\$8,160	\$13,472,150	\$1,220,541	\$1,246,114	\$4,454,223	\$238,722	\$292,126	\$1,155,124	\$216,952	\$745,052	\$2,317,068	\$2,978,405	23
2,700	282	130	687	1	20	20	20	1	24	228	228	24
\$904,842	\$90,701	\$29,850	\$202,537	\$240	\$4,571	\$390	\$4,571	\$390	\$8,518	\$7,565	\$125,362	25
80	137	321	4	25	8	49	157	26	27	157	26	26
\$15,282	\$10,306	\$26,227	\$100,493	\$676	\$5,510	\$2,723	\$9,392	\$53,151	27	27	27	27
10	27,934	2,846	3,279	7,793	500	517	2,445	441	1,448	3,600	5,465	28
10	26,804	2,684	2,977	7,731	449	518	2,483	414	1,323	3,571	5,117	29
10	26,005	2,518	2,635	7,592	320	514	2,299	409	1,222	3,944	5,512	30
10	24,701	2,358	2,378	7,788	357	513	2,169	406	1,176	3,674	5,521	31
10	24,793	2,491	2,550	7,947	338	513	2,150	393	1,217	3,814	5,629	32
10	24,904	2,739	2,796	8,053	413	500	2,248	413	1,242	4,469	5,745	33
10	14,825	2,932	2,712	7,872	509	499	2,265	411	893	3,585	4,137	34
10	15,137	2,869	2,697	8,639	504	497	2,231	412	1,135	3,855	3,670	35
10	21,648	2,813	2,629	9,042	490	488	2,270	414	1,158	4,462	4,749	36
10	25,248	2,744	2,575	8,939	513	502	2,258	421	1,335	4,399	5,559	37
10	26,733	2,866	2,838	8,951	537	517	2,266	446	1,621	4,596	5,612	38
10	28,104	2,972	3,390	8,665	552	518	2,372	448	1,686	4,847	5,684	39
2,937	291	137	137	137	1	25	25	1	29	19	243	40
2,884	286	126	126	126	1	23	23	1	28	23	175	41
2,891	251	116	116	116	1	23	23	1	27	40	195	42
2,715	247	108	108	108	1	20	20	1	25	49	240	43
2,823	250	123	123	123	1	20	20	1	25	46	246	44
2,881	286	138	138	138	1	18	18	1	29	61	224	45
1,066	316	136	136	136	1	18	18	1	8	22	80	46
1,278	314	118	118	118	1	16	16	1	16	14	101	47
2,438	275	124	124	124	1	16	16	1	16	33	241	48
3,408	270	136	136	136	1	18	18	1	24	29	308	49
3,499	282	145	145	145	1	20	20	1	28	63	340	50
3,580	316	153	153	153	1	23	23	1	33	69	343	51
79	50	158	283	283	4	24	24	9	54	137	52	52
78	50	152	283	283	4	23	23	10	53	110	53	53
84	45	120	299	299	4	24	24	7	52	122	54	54
80	40	112	307	307	4	25	25	7	53	145	55	55
80	45	124	306	306	4	24	24	11	52	150	56	56
84	50	146	315	315	4	26	26	12	61	181	57	57
69	52	126	302	302	4	28	28	6	23	157	58	58
70	52	122	338	338	4	28	28	10	41	142	59	59
89	48	148	370	370	4	26	26	9	58	223	60	60
80	50	136	360	360	4	25	25	7	46	184	61	61
81	50	132	360	360	4	24	24	6	44	166	62	62
86	56	168	329	329	4	23	23	5	51	167	63	63
\$9,067	\$12,873,051	\$571,470	\$697,742	\$3,550,017	\$124,884	\$144,411	\$646,334	\$137,889	\$391,793	\$1,861,971	\$2,060,648	64
\$75	\$78,029	\$6,710	\$7,920	\$90	\$1,380	\$12,297	\$3,000	\$2,100	\$2,533	\$17,190	65	65
\$719	\$318,782	\$41,643	\$12,896	\$143,640	\$6,440	\$7,093	\$82,322	\$11,733	\$13,304	\$18,339	\$62,645	66
\$8,273	\$12,476,080	\$523,117	\$676,926	\$3,404,062	\$117,064	\$124,166	\$559,678	\$124,056	\$375,956	\$1,826,442	\$1,998,003	67
\$120,431	\$273,355,866	\$24,793,586	\$26,895,711	\$83,680,531	\$4,421,037	\$5,466,072	\$27,321,077	\$4,406,112	\$14,373,743	\$53,521,528	\$61,205,612	68
2,388	2,527,763	157,886	86,424	980,662	13,970	5,845	434	1,180	93,169	567,599	625,853	70
\$59,665	\$106,254,907	\$6,682,204	\$2,966,106	\$36,881,754	\$535,202	\$173,800	\$24,502	\$38,400	\$2,598,446	\$21,861,223	\$25,068,632	71
4,394	3,393,835	24,601	10,592	751,405	3,956	-----	-----	2,000	139,635	557,599	949,310	72
\$12,135	\$14,258,047	\$104,666	\$40,027	\$2,761,254	\$11,635	-----	-----	\$7,000	\$2,197,628	\$2,197,628	\$3,482,682	73
4,038	7,678,370	1,433,907	2,052,023	3,073,553	376,180	631,746	1,529,401	287,593	1,042,433	2,102,386	2,357,285	74
\$40,442	\$86,699,545	\$15,161,563	\$22,407,522	\$33,558,626	\$3,761,208	\$4,250,344	\$21,266,310	\$3,414,547	\$9,760,675	\$23,014,156	\$27,648,897	75
822	288,401	24,226	4,261	90,641	1,251	-----	337	1,450	19,381	43,056	9,151	76
\$6,123	\$2,047,318	\$205,778	\$30,180	\$717,151	\$5,802	-----	\$2,224	\$8,800	\$106,548	\$338,803	\$72,221	77
-----	\$11,872	\$6,116	\$2,000	-----	\$30	-----	-----	\$665	\$4,122	\$1,000	-----	78
-----	\$18,977,058	\$1,510,718	\$90,279	\$5,013,185	\$17,190	\$726,818	\$5,106,112	\$843,036	\$224,665	\$1,355,366	\$584,709	79
-----	\$1,384,613	\$152,315	\$183,721	\$659,930	\$28,859	\$43,568	\$132,301	\$25,563	\$73,759	\$308,278	\$465,864	80
-----	\$54,015	\$255	\$4,249	\$850	-----	\$800	\$1,482	-----	\$2,222	\$300	-----	81
-----	\$185,804	\$9,852	\$10,385	\$65,880	\$2,049	\$5,411	\$17,212	\$2,489	\$6,324	\$37,676	\$71,417	82
-----	\$43,254,984	\$912,930	\$1,146,358	\$4,012,898	\$58,743	\$168,886	\$664,894	\$53,522	\$1,034,110	\$4,118,480	\$3,811,290	83
-----	\$227,703	\$47,189	\$14,884	\$9,003	\$319	\$96,445	\$106,040	\$12,090	\$11,143	\$288,618	-----	84

TABLE 12.—SLAUGHTERING AND MEAT PACKING, WHOLESALE—DETAILED

		United States.	California.	Colorado.	Delaware.	District of Columbia.	Georgia.
85	Products, total value.....	\$801,757,137	\$12,205,716	\$2,859,368	\$547,700	\$615,464	\$273,943
	Beef—						
86	Sold fresh (exclusive of purchased dressed fresh beef)—						
87	Pounds.....	3,079,657,996	57,850,619	12,645,890	2,115,880	720,000	1,198,750
	Value.....	\$196,512,506	\$3,888,738	\$893,535	\$148,640	\$50,400	\$85,285
88	Canned—						
89	Pounds.....	98,663,931	310,499				
	Value.....	\$7,697,815	\$18,370				
90	Salted and cured—						
91	Pounds.....	129,521,208	2,386,927	5,000		52,000	
	Value.....	\$7,776,480	\$171,352	\$500		\$4,160	
92	Mutton, sold fresh (exclusive of purchased dressed fresh mutton)—						
93	Pounds.....	301,046,592	14,795,373	1,161,338	105,000	30,000	32,750
	Value.....	\$22,646,726	\$1,140,148	\$98,533	\$10,500	\$5,000	\$2,385
94	Veal, sold fresh (exclusive of purchased dressed fresh veal)—						
95	Pounds.....	77,559,850	2,015,143	448,089	63,360	54,600	90,000
	Value.....	\$5,716,992	\$149,923	\$36,583	\$6,936	\$5,460	\$7,200
	Pork—						
96	Sold fresh (exclusive of purchased dressed fresh pork)—						
97	Pounds.....	957,198,147	15,878,759	2,987,911	589,080	418,500	1,127,000
	Value.....	\$74,135,180	\$1,283,589	\$285,799	\$54,908	\$33,480	\$87,938
98	Salted—						
99	Pounds.....	1,558,811,356	4,694,766	4,817,974	498,800	74,564	60,000
	Value.....	\$116,619,973	\$461,314	\$333,757	\$40,016	\$7,456	\$4,400
100	Hams, smoked bacon, sides, and shoulders—						
101	Pounds.....	1,363,838,540	18,482,572	6,269,875	1,149,500	1,583,558	125,000
	Value.....	\$132,193,951	\$2,270,661	\$648,372	\$113,700	\$141,280	\$12,995
102	Sausage, fresh and cured—						
103	Pounds.....	322,486,176	4,306,552	1,506,525	315,200	2,518,250	160,000
	Value.....	\$24,894,901	\$446,563	\$117,444	\$29,140	\$226,550	\$12,000
104	All other meat, sold fresh (exclusive of purchased dressed fresh meat)—						
105	Pounds.....	123,918,281	350,000		130,000		
106	Value.....	\$9,553,329	\$17,500		\$13,000		
	Canned goods, value.....	\$8,416,850	\$51,203				
107	Refined lard—						
108	Pounds.....	1,043,259,594	7,488,235	2,596,783	1,412,330	910,000	63,000
	Value.....	\$73,805,824	\$569,027	\$179,557	\$106,577	\$72,800	\$5,270
109	Neutral lard—						
110	Pounds.....	119,141,744	819,227	16,400		626,000	
	Value.....	\$8,325,009	\$66,058	\$1,640		\$43,820	
111	Oleomargarine oil—						
112	Gallons.....	15,708,349					
	Value.....	\$8,066,367					
113	Other oils—						
114	Gallons.....	3,588,032	9,259	1,200			
	Value.....	\$1,792,331	\$5,707	\$600			
115	Soap—						
116	Pounds.....	49,781,256					
	Value.....	\$1,813,138					
117	Fertilizers—						
118	Tons.....	205,402	1,833	567	28	130	
	Value.....	\$4,240,605	\$51,286	\$5,903	\$388	\$2,340	
119	Fertilizer materials (bones, offal, tankage, etc.)—						
120	Tons.....	133,367	438	40	354	10	50
	Value.....	\$2,494,574	\$6,358	\$400	\$3,555	\$100	\$1,000
121	Glue—						
122	Pounds.....	17,526,099					
	Value.....	\$1,087,694					
123	Hides—						
124	Number.....	6,394,327	124,321	25,089	3,255	2,860	3,800
125	Pounds.....	372,811,389	6,556,620	1,484,140	227,850	129,180	160,500
	Value.....	\$36,143,450	\$656,900	\$126,617	\$15,949	\$10,358	\$11,678
126	Sheep pelts—						
127	Number.....	6,948,684	377,012	28,010	2,100	1,000	900
	Value.....	\$6,051,493	\$324,790	\$22,725	\$2,100	\$500	\$375
128	Wool—						
129	Pounds.....	9,672,001	60,000				
130	Value.....	\$2,609,613	\$21,000				
131	Fine chemicals (pancreatin, pepsin, etc.).....	\$208,002					
132	All other products.....	\$48,848,701	\$605,229	\$93,556	\$2,291	\$11,760	\$43,417
	Amount received for custom or contract work.....	\$105,633		\$13,847			
	Weight of animals slaughtered (pounds):						
133	Beeves—						
134	Gross weight on the hoof.....	6,229,335,794	111,783,047	23,602,827	4,069,000	2,080,000	2,515,000
	Net weight dressed.....	3,391,998,330	60,177,134	12,828,670	2,115,880	1,040,000	1,218,750
135	Sheep—						
136	Gross weight on the hoof.....	600,558,367	30,993,396	2,465,084	210,000	55,000	66,000
	Net weight dressed.....	298,356,922	15,074,042	1,161,338	105,000	30,000	32,750
137	Hogs—						
138	Gross weight on the hoof.....	6,231,500,179	44,511,297	24,076,280	4,107,400	2,584,000	2,020,000
	Net weight dressed.....	4,770,617,068	34,182,205	18,056,072	3,295,600	1,938,000	1,531,000
139	Calves—						
140	Gross weight on the hoof.....	134,706,620	3,189,738	783,750	105,600	105,300	180,000
	Net weight dressed.....	84,230,921	2,015,143	454,722	63,360	54,600	90,000
141	Power:						
142	Number of establishments reporting.....	498	22	7	5	3	3
	Total horsepower.....	142,591	1,779	758	160	113	344
	Owned—						
	Engines—						
143	Steam—						
144	Number.....	1,024	20	12	4	1	8
	Horsepower.....	102,216	1,136	758	138	108	304
145	Gas and gasoline—						
146	Number.....	19					
	Horsepower.....	503					
147	Water wheels—						
148	Number.....	1					
	Horsepower.....	60					
149	Water motors—						
150	Number.....	3					
	Horsepower.....	8					
151	Electric motors—						
152	Number.....	2,022	4			1	1
153	Horsepower.....	35,970	21			5	40
	Other power, horsepower.....	1,158	300				
	Rented—						
154	Electric motors—						
155	Number.....	192	22		2		
156	Horsepower.....	2,676	322				
	Furnished to other establishments, horsepower.....	1,992					

SLAUGHTERING AND MEAT PACKING.

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SUMMARY, BY STATES AND TERRITORIES: 1905—Continued.

Idaho.	Illinois.	Indiana.	Iowa.	Kansas.	Kentucky.	Maryland.	Massachusetts.	Michigan.	Minnesota.	Missouri.	Nebraska.	
\$158,975	\$309,853,630	\$27,639,010	\$29,714,737	\$94,702,378	\$5,469,911	\$6,332,914	\$30,253,838	\$4,901,435	\$16,723,276	\$59,416,759	\$69,243,468	85
1,215,200	1,324,054,307	82,526,407	80,038,300	491,233,965	5,335,142	2,226,818	360,533	570,000	47,504,949	313,049,260	336,843,262	86
\$66,821	\$88,618,333	\$8,034,219	\$2,672,240	\$29,306,017	\$343,486	\$147,450	\$24,336	\$38,500	\$2,411,216	\$18,957,375	\$19,985,184	87
	73,266,797	1,530,000	2,557,027	7,506,980						1,985,936	7,701,792	88
	\$6,108,692	\$159,180	\$87,593	\$411,268						\$54,282	\$299,365	89
	78,334,416	2,557,500	1,255,572	11,144,304	37,425	129,600	2,294,490	29,429	826,960	904,663	15,006,931	90
	\$4,931,741	\$357,780	\$87,254	\$473,961	\$3,892	\$7,070	\$116,063	\$2,892	\$42,817	\$55,576	\$583,349	91
190,825	150,278,448	1,086,931	426,944	29,234,944	140,965			82,500	6,230,313	23,318,189	42,556,050	92
\$14,414	\$11,659,039	\$95,975	\$38,611	\$2,078,265	\$12,264			\$6,675	\$394,023	\$1,811,600	\$2,746,883	93
100,900	29,758,118	1,928,776	410,139	9,518,019	75,282		22,246	130,500	1,887,524	4,873,113	1,085,020	94
\$7,510	\$2,084,488	\$181,487	\$33,623	\$631,355	\$5,701		\$2,381	\$10,065	\$116,969	\$339,090	\$66,875	95
362,800	226,419,428	18,071,274	39,952,675	78,674,972	4,932,887	17,690,875	78,150,774	9,732,875	42,821,396	116,256,674	83,291,604	96
\$32,025	\$16,657,198	\$1,317,453	\$2,885,191	\$5,647,257	\$416,565	\$1,538,427	\$7,037,134	\$828,780	\$3,156,638	\$8,245,808	\$5,873,886	97
7,000	584,019,438	16,192,188	120,255,136	171,957,267	19,290,675	1,847,580	107,572,101	15,252,000	52,555,395	131,795,452	146,084,937	98
\$560	\$42,973,175	\$1,307,795	\$7,139,130	\$13,628,093	\$1,596,606	\$160,568	\$8,791,623	\$1,364,205	\$4,240,053	\$9,624,998	\$10,447,734	99
152,100	301,720,854	149,394,873	95,005,454	131,997,527	19,799,275	28,828,762	59,518,493	15,025,890	19,186,367	63,962,310	104,747,378	100
\$18,380	\$29,780,849	\$11,924,835	\$8,913,171	\$14,135,135	\$1,902,770	\$2,872,818	\$5,622,780	\$1,649,322	\$1,919,167	\$5,887,371	\$10,197,694	101
32,800	99,194,762	15,393,579	9,826,458	24,169,700	4,002,001	8,362,360	17,501,829	3,022,472	8,151,961	19,127,535	18,192,410	102
\$2,772	\$7,753,799	\$1,172,287	\$658,407	\$1,814,777	\$298,181	\$645,566	\$1,435,539	\$219,210	\$696,695	\$1,294,756	\$1,199,537	103
	56,323,948	751,200	13,599,742	5,343,167	600	16,600		7,630	794,420	2,625,218	8,198,486	104
	\$5,346,938	\$59,484	\$894,121	\$200,693	\$42	\$1,328		\$763	\$72,200	\$120,590	\$561,107	105
	\$4,819,452	\$244,750	\$418,575	\$1,742,092		\$28,000				\$9,836	\$721,225	106
65,000	408,370,245	35,501,430	58,272,811	125,803,240	6,211,015	8,562,932	81,424,583	8,027,572	26,325,556	28,254,570	74,188,636	107
\$6,000	\$28,151,535	\$2,484,288	\$4,145,629	\$9,109,438	\$478,286	\$649,716	\$6,237,845	\$613,730	\$1,925,587	\$1,959,757	\$5,154,213	108
	47,780,170	8,118,420	6,900,196	6,745,857	4,119,256	1,826,640	3,193,230	119,000	110,000	4,337,120	10,514,595	109
	\$3,281,564	\$613,622	\$535,303	\$451,555	\$289,713	\$135,469	\$156,001	\$10,640	\$8,000	\$295,158	\$697,188	110
	9,143,055	266,101	109,133	1,611,428	5,750				283,912	1,829,250	1,742,076	111
	\$4,515,283	\$145,915	\$60,023	\$869,945	\$3,019				\$142,517	\$1,021,529	\$949,543	112
	986,981	188,883	236,629	24,051			68,369		150	235,269	787,937	113
	\$496,239	\$101,722	\$49,089	\$13,731			\$28,839		\$75	\$96,655	\$518,363	114
	34,537,665	2,198,000		228,622					89,600			115
	\$1,380,204	\$62,500		\$13,718					\$2,240			116
	130,310	9,513	5,686	16,319	195	104		384	6,967	8,253	10,320	117
	\$2,394,519	\$172,814	\$120,340	\$413,338	\$3,252	\$1,560		\$6,912	\$150,391	\$207,171	\$395,184	118
	48,317	1,562	2,557	6,128	1,482	3,680	1,188	90	50	33,809	12,990	119
	\$1,222,931	\$14,915	\$48,269	\$118,260	\$21,768	\$98,451	\$33,998	\$500	\$550	\$408,287	\$221,835	120
	12,463,446		537,686	1,973,564							1,679,631	121
	\$785,658		\$25,540	\$100,417							\$117,564	122
2,388	2,650,829	166,691	88,440	1,022,696	14,570	5,845	771	1,230	110,024	600,758	684,989	123
122,350	159,355,767	9,943,443	6,258,608	56,781,664	817,931	333,364	40,572	68,450	5,684,279	37,597,316	39,787,110	124
\$8,069	\$16,080,053	\$951,232	\$606,595	\$5,647,218	\$71,016	\$25,855	\$3,958	\$5,172	\$579,631	\$3,314,510	\$3,721,338	125
4,394	3,391,780	25,177	10,591	731,182	3,928			1,800	147,731	573,076	956,686	126
\$2,424	\$2,679,929	\$20,190	\$8,824	\$711,519	\$2,824			\$1,000	\$154,726	\$540,701	\$1,003,744	127
	8,653,419		30,572					800				128
	\$2,385,020		\$9,172					\$160				129
	\$170,069							\$900			\$16,991	130
	\$25,562,013	\$212,816	\$277,537	\$7,184,246	\$19,581	\$20,636	\$19,842	\$152,009	\$708,542	\$5,169,684	\$3,764,666	131
	\$14,909	\$3,751	\$500	\$80	\$925		\$23,937		\$1,239	\$2,025		132
2,418,000	2,705,804,540	166,965,243	87,023,700	999,538,841	14,362,157	5,767,554	554,666	1,140,000	95,275,012	587,889,512	679,103,833	133
1,231,500	1,500,180,002	87,492,764	44,034,011	540,919,446	7,640,991	3,072,818	360,533	570,000	47,998,539	322,211,355	372,365,240	134
374,450	290,629,611	2,131,331	969,147	60,841,769	275,627			165,000	13,259,084	47,079,562	85,314,793	135
190,825	146,384,162	1,088,081	427,034	30,611,884	140,965			82,500	6,376,203	23,494,316	41,323,122	136
807,600	1,744,195,118	294,540,050	466,405,393	690,561,244	73,938,153	83,815,028	389,684,281	56,401,856	207,004,058	469,107,160	569,359,412	137
602,100	1,298,712,990	235,360,517	356,257,920	523,304,593	57,887,109	65,502,634	306,325,386	42,802,229	162,118,119	370,312,030	424,617,248	138
146,310	45,413,366	3,036,541	733,913	20,444,908	127,715		37,024	498,750	3,001,065	8,303,922	1,660,065	139
101,400	30,168,557	1,939,072	410,313	12,232,965	76,138		22,246	355,500	1,950,443	5,291,220	1,075,196	140
2	57	26	13	17	13	26	11	8	12	21	6	141
22	58,175	4,847	4,820	18,907	977	1,126	2,916	969	1,581	9,534	9,021	142
2	173	62	38	71	21	30	27	13	20	65	2	143
12	36,544	4,131	4,053	13,527	887	1,110	2,632	794	1,436	7,462	6,303	144
	3	2	1				1					145
	232	35	16				3			13		146
										1		147
										60		148
												149
												150
	1,049	64	57	263	3	1	25	16	3	121	140	151
	19,576	671	656	5,318	90	16	168	175	10	1,999	2,718	152
	855						3					153
1	65	3	7	4			3		11			154
10	968	10	95	62			110		135			155
	1,700	8					37		7			156

TABLE 12.—SLAUGHTERING AND MEAT PACKING, WHOLESALE—DETAILED

	New Jersey.	New York.	Ohio.	Oregon.
1 Number of establishments.....	18	45	56	10
2 Capital, total.....	\$1,458,400	\$7,682,740	\$6,068,069	\$974,727
3 Land.....	\$241,100	\$958,833	\$732,572	\$191,817
4 Buildings.....	\$422,308	\$1,126,076	\$1,188,993	\$168,198
5 Machinery, tools, and implements.....	\$256,969	\$957,009	\$870,154	\$176,429
6 Cash and sundries.....	\$538,023	\$4,640,822	\$3,276,350	\$438,283
7 Proprietors and firm members.....	15	49	51	7
8 Salaried officials, clerks, etc.:.....				
9 Total number.....	64	400	305	60
10 Total salaries.....	\$67,964	\$393,706	\$284,668	\$72,914
11 Officers of corporations—.....				
12 Number.....	10	28	42	16
13 Salaries.....	\$28,044	\$98,066	\$83,070	\$28,425
14 General superintendents, managers, clerks, etc. -.....				
15 Total number.....	54	372	263	44
16 Total salaries.....	\$39,920	\$295,640	\$201,598	\$44,489
17 Men—.....				
18 Number.....	45	306	237	40
19 Salaries.....	\$36,104	\$262,886	\$188,304	\$42,313
20 Women—.....				
21 Number.....	11	66	26	4
22 Salaries.....	\$3,816	\$32,754	\$13,294	\$2,176
23 Wage-earners, including pieceworkers, and total wages:.....				
24 Greatest number employed at any one time during the year.....	406	1,846	2,340	322
25 Least number employed at any one time during the year.....	351	1,579	1,958	253
26 Average number.....	381	1,695	2,112	246
27 Total wages.....	\$254,050	\$932,777	\$1,231,630	\$155,498
28 Men 16 years and over—.....				
29 Average number.....	379	1,532	2,074	244
30 Wages.....	\$253,322	\$880,092	\$1,220,661	\$154,678
31 Women 16 years and over—.....				
32 Average number.....	2	163	35	1
33 Wages.....	\$728	\$52,685	\$10,099	\$520
34 Children under 16 years—.....				
35 Average number.....			3	1
36 Wages.....			\$870	\$300
37 Average number of wage-earners, including pieceworkers, employed during each month:.....				
38 Men 16 years and over—.....				
39 January.....	396	1,580	2,135	238
40 February.....	390	1,572	2,088	223
41 March.....	384	1,546	2,023	230
42 April.....	382	1,461	1,993	228
43 May.....	379	1,467	1,997	229
44 June.....	365	1,489	1,997	227
45 July.....	362	1,491	2,035	229
46 August.....	362	1,491	2,043	228
47 September.....	368	1,518	2,054	244
48 October.....	381	1,574	2,147	278
49 November.....	388	1,592	2,163	282
50 December.....	391	1,603	2,213	292
51 Women 16 years and over—.....				
52 January.....	2	161	36	1
53 February.....	2	160	36	1
54 March.....	2	158	36	1
55 April.....	2	163	33	1
56 May.....	2	158	33	1
57 June.....	2	164	33	1
58 July.....	2	166	32	1
59 August.....	2	165	33	1
60 September.....	2	168	38	1
61 October.....	2	168	36	1
62 November.....	2	162	37	1
63 December.....	2	163	37	1
64 Children under 16 years—.....				
65 January.....			11	1
66 February.....			2	1
67 March.....			3	1
68 April.....			3	1
69 May.....			2	1
70 June.....			3	1
71 July.....			3	1
72 August.....			1	1
73 September.....			1	1
74 October.....			3	1
75 November.....			4	1
76 December.....			7	1
77 Miscellaneous expenses, total.....	\$149,261	\$921,214	\$627,881	\$126,178
78 Rent of works.....	\$14,000	\$17,796	\$14,685	\$5,400
79 Taxes.....	\$6,868	\$25,057	\$31,663	\$6,151
80 Rent of offices, interest, insurance, and all other sundry expenses not hitherto included.....	\$128,193	\$877,791	\$581,393	\$108,397
81 Contract work.....	\$200	\$570	\$140	\$6,200
82 Materials used, total cost.....	\$4,368,777	\$19,660,621	\$22,928,214	\$2,389,902
83 Animals slaughtered—.....				
84 Beeves—.....				
85 Number.....	4,782	57,403	143,014	25,462
86 Cost.....	\$220,996	\$2,172,362	\$4,950,978	\$902,812
87 Sheep—.....				
88 Number.....	59,444	39,599	98,450	82,870
89 Cost.....	\$248,009	\$154,963	\$328,593	\$233,373
90 Hogs—.....				
91 Number.....	230,158	884,039	1,434,838	60,931
92 Cost.....	\$1,959,258	\$9,363,559	\$14,822,843	\$711,755
93 Calves—.....				
94 Number.....	10,920	5,442	55,001	2,831
95 Cost.....	\$118,882	\$41,678	\$426,465	\$17,555
96 All other animals.....			\$25,000	
97 Dressed meat, purchased fresh or partially cured (to be manufactured).....	\$1,702,936	\$6,684,462	\$1,497,516	\$359,504
98 Fuel.....	\$24,013	\$116,635	\$115,263	\$21,402
99 Rent of power and heat.....	\$2,650	\$8,671	\$1,216	\$240
100 Mill supplies.....	\$2,790	\$9,842	\$23,518	\$2,636
101 All other materials.....	\$63,005	\$1,101,555	\$711,433	\$54,913
102 Freight.....	\$26,238	\$6,894	\$25,389	\$85,702

¹ Includes establishments distributed as follows: Alabama, 1; Connecticut, 2; Maine, 2; Montana, 1; Nevada, 1; Oklahoma, 1; Vermont, 1; Wyoming, 1.

SLAUGHTERING AND MEAT PACKING.

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SUMMARY, BY STATES AND TERRITORIES: 1905—Continued.

Pennsylvania.	Rhode Island.	Tennessee.	Texas.	Utah.	Virginia.	Washington.	West Virginia.	Wisconsin.	All other states. ¹	
71	11	8	9	3	14	13	6	14	10	1
\$7,286,060	\$523,142	\$379,420	\$6,374,743	\$147,664	\$683,332	\$2,283,644	\$477,646	\$4,689,064	\$926,430	2
\$578,628	\$25,800	\$70,550	\$724,550	\$10,000	\$43,100	\$314,905	\$30,025	\$364,437	\$130,600	3
\$1,598,017	\$60,940	\$105,150	\$1,819,704	\$8,200	\$91,750	\$249,760	\$64,339	\$607,425	\$433,899	4
\$941,836	\$44,596	\$166,650	\$1,513,587	\$9,800	\$130,485	\$158,643	\$44,500	\$479,477	\$141,346	5
\$4,167,579	\$391,806	\$37,070	\$2,316,902	\$119,664	\$417,997	\$1,556,336	\$338,782	\$3,237,725	\$220,585	6
77	7	9	2	1	12	9	6	13	6	7
302	11	8	333	9	30	58	29	140	40	8
\$324,790	\$11,280	\$7,600	\$323,110	\$10,260	\$27,628	\$79,096	\$19,800	\$187,373	\$53,740	11
29	2	5	8	3	4	9	8	21	3	10
\$68,640	\$2,600	\$4,300	\$22,000	\$5,040	\$8,160	\$21,000	\$9,180	\$69,660	\$9,000	11
273	9	3	325	6	26	49	21	119	37	12
\$256,150	\$8,680	\$3,300	\$301,110	\$5,220	\$19,468	\$58,096	\$10,620	\$117,713	\$44,740	13
249	9	3	309	2	24	38	15	111	35	14
\$245,792	\$8,680	\$3,300	\$286,567	\$3,300	\$18,468	\$48,796	\$9,000	\$113,263	\$43,740	15
24			16	1	2	11	6	11	2	16
\$10,358			\$14,543	\$1,920	\$1,000	\$9,300	\$1,620	\$4,450	\$1,000	17
2,257	154	152	2,416	32	265	366	146	2,052	493	18
1,941	148	118	1,450	29	134	297	117	1,137	365	19
2,104	151	46	2,019	31	158	335	133	1,483	426	20
\$1,268,347	\$82,058	\$18,378	\$866,498	\$20,950	\$69,277	\$286,910	\$73,628	\$727,164	\$232,031	21
2,072	151	45	1,871	31	150	332	132	1,432	420	22
\$1,258,220	\$82,058	\$18,178	\$831,511	\$20,950	\$67,127	\$284,964	\$73,420	\$714,344	\$230,622	23
26		1	85		4	3		8	3	24
\$8,908		\$200	\$18,741		\$1,150	\$1,946		\$2,620	\$780	25
6			63		4		1	43	3	26
\$1,219			\$16,246		\$1,000		\$208	\$10,200	\$629	27
2,070	152	36	1,684	31	213	333	145	1,799	447	28
2,035	152	35	1,701	31	178	317	120	1,582	445	29
2,007	150	36	1,802	31	144	319	120	1,249	441	30
2,016	148	35	1,869	31	120	308	120	1,184	380	31
2,020	150	38	1,862	31	122	323	145	1,200	381	32
1,990	152	37	1,881	31	116	324	144	1,378	385	33
1,992	152	38	1,684	31	115	331	144	1,397	392	34
2,015	150	40	1,949	31	123	332	144	1,460	395	35
2,079	149	41	1,866	31	118	337	104	1,407	400	36
2,183	151	41	1,986	31	138	351	118	1,186	455	37
2,216	153	74	2,117	31	189	353	136	1,597	460	38
2,241	153	89	2,051	31	224	356	144	1,745	459	39
26			66		3	3		11	2	40
27			58		3	3		10	2	41
28			76		3	3		7	2	42
29			64		3	3		4	2	43
27			69		3	3		4	2	44
20			74		3	3		4	2	45
24			68		5	3		4	2	46
24			85		5	3		4	2	47
25			97		7	3		8	2	48
26			118		6	3		9	4	49
26			124		3	3		12	7	50
27		12	121		4	3		12	7	51
11			55		5		1	53	2	52
11			65		5		1	43	2	53
11			56		4		1	35	2	54
11			56		3		1	33	2	55
11			65		4		1	34	2	56
5			66		4		1	40	3	57
6			51		4		1	35	2	58
6			60		3		1	44	2	59
7			62		5		1	54	4	60
7			72		6		1	38	6	61
7			74		2		1	52	5	62
7			74		3		1	55	4	63
\$752,942	\$34,022	\$11,662	\$714,693	\$16,595	\$54,596	\$190,319	\$18,257	\$590,285	\$102,676	64
\$54,854	\$1,900		\$3,245	\$3,245	\$2,000	\$2,540	\$2,780	\$11,869	\$13,300	65
\$25,877	\$1,209	\$432	\$22,865	\$342	\$2,314	\$9,661	\$2,725	\$18,044	\$4,430	66
\$671,246	\$30,913	\$11,230	\$691,828	\$13,008	\$50,282	\$177,968	\$12,752	\$560,372	\$84,946	67
\$865					\$150					68
\$20,852,061	\$2,290,310	\$220,534	\$13,593,181	\$513,543	\$1,745,634	\$5,423,134	\$1,667,648	\$13,684,979	\$3,451,330	69
99,402		950	285,295	12,660	7,340	54,539	7,477	59,659	14,984	70
\$4,904,918		\$37,588	\$6,051,742	\$312,164	\$252,800	\$2,348,411	\$299,682	\$1,954,522	\$444,241	71
143,478		235	49,831	26,371	7,150	179,819	4,204	58,374	15,623	72
\$613,532		\$700	\$165,281	\$88,692	\$29,650	\$720,781	\$16,198	\$238,003	\$48,945	73
1,061,263	89,548	16,090	347,040	3,740	126,095	122,313	115,430	938,418	207,993	74
\$9,929,973	\$1,438,173	\$184,983	\$3,218,450	\$33,024	\$986,708	\$1,504,273	\$1,291,090	\$10,040,488	\$2,774,654	75
52,650		135	94,093	3,330	6,330	5,463	3,791	34,507	4,105	76
\$409,360		\$400	\$603,625	\$27,130	\$49,100	\$55,716	\$25,628	\$193,544	\$46,895	77
				\$650			\$1,950			78
\$3,352,303	\$806,189		\$660,107	\$42,600	\$280,984	\$625,682	\$22,500	\$572,156	\$59,750	79
\$134,268	\$4,801		\$195,687	\$4,320	\$15,190	\$17,244	\$9,651	\$106,530	\$22,915	80
\$1,813	\$2,236			\$4,160		\$2,629	\$14	\$400	\$3,000	81
\$21,894	\$641	\$365	\$40,513	\$803	\$1,855	\$4,686	\$560	\$7,457	\$1,960	82
\$1,232,667	\$37,950	\$1,296	\$2,654,649		\$116,217	\$138,212	\$375	\$562,073	\$29,455	83
\$191,333	\$320	\$1,261	\$3,127		\$13,150	\$5,500		\$9,806	\$19,515	84

TABLE 12.—SLAUGHTERING AND MEAT PACKING, WHOLESALE—DETAILED

		New Jersey.	New York.	Ohio.	Oregon.
85	Products, total value.....	\$5,050,451	\$22,807,856	\$26,380,884	\$2,907,154
	Beef—				
	Sold fresh (exclusive of purchased dressed fresh beef)—				
86	Pounds.....	1,681,000	29,580,449	68,632,466	13,525,565
87	Value.....	\$208,126	\$2,161,301	\$4,541,938	\$882,814
	Canned—				
88	Pounds.....		2,460,000	986,720	
89	Value.....		\$447,903	\$98,672	
	Salted and cured—				
90	Pounds.....	293,925	7,882,644	2,434,645	425,000
91	Value.....	\$32,973	\$435,674	\$175,972	\$21,500
	Mutton, sold fresh (exclusive of purchased dressed fresh mutton)—				
92	Pounds.....	1,956,313	1,381,312	3,711,420	3,785,414
93	Value.....	\$203,203	\$140,310	\$321,942	\$223,207
	Veal, sold fresh (exclusive of purchased dressed fresh veal)—				
94	Pounds.....	949,090	655,436	4,215,610	293,980
95	Value.....	\$95,709	\$54,504	\$383,737	\$19,822
	Pork—				
	Sold fresh (exclusive of purchased dressed fresh pork)—				
96	Pounds.....	13,612,074	47,999,573	47,388,532	2,148,669
97	Value.....	\$1,412,080	\$4,071,920	\$4,393,345	\$185,657
	Salted—				
98	Pounds.....	6,440,860	28,146,502	38,230,873	1,613,701
99	Value.....	\$545,936	\$2,633,425	\$3,015,005	\$133,741
	Hams, smoked bacon, sides, and shoulders—				
100	Pounds.....	12,884,743	78,349,412	78,124,528	7,633,646
101	Value.....	\$1,271,008	\$8,079,191	\$7,160,699	\$764,864
	Sausage, fresh and cured—				
102	Pounds.....	3,586,223	11,133,196	17,279,864	1,041,720
103	Value.....	\$371,815	\$920,252	\$1,273,885	\$79,150
	All other meat, sold fresh (exclusive of purchased dressed fresh meat)—				
104	Pounds.....	1,365,846	2,828,915	3,970,674	
105	Value.....	\$97,088	\$237,168	\$228,607	
106	Canned goods, value.....		\$280,270	\$45,556	\$9,863
	Refined lard—				
107	Pounds.....	1,171,700	26,338,002	42,955,326	2,449,740
108	Value.....	\$85,520	\$1,832,591	\$2,994,388	\$220,023
	Neutral lard—				
109	Pounds.....	1,050,399	7,204,608	5,808,140	
110	Value.....	\$84,032	\$482,686	\$402,867	
	Oleomargarine oil—				
111	Gallons.....			130,250	
112	Value.....			\$73,440	
	Other oils—				
113	Gallons.....	5,000	104,750	107,500	2,248
114	Value.....	\$700	\$62,413	\$48,645	\$1,124
	Soap—				
115	Pounds.....				
116	Value.....				
	Fertilizers—				
117	Tons.....	100	3,012	945	455
118	Value.....	\$1,400	\$38,082	\$16,901	\$9,000
	Fertilizer materials (bones, offal, tankage, etc.)—				
119	Tons.....	3,933	1,685	5,784	
120	Value.....	\$22,375	\$34,479	\$77,328	
	Glue—				
121	Pounds.....			218,400	129,386
122	Value.....			\$14,500	\$9,700
	Hides—				
123	Number.....	6,382	59,203	176,968	26,493
124	Pounds.....	347,350	2,908,100	8,464,667	1,533,083
125	Value.....	\$35,714	\$247,103	\$772,783	\$131,603
	Sheep pelts—				
126	Number.....	59,444	39,599	98,450	13,267
127	Value.....	\$19,397	\$38,313	\$59,426	\$9,996
	Wool—				
128	Pounds.....	154,748			764,462
129	Value.....	\$42,811			\$150,000
	Fine chemicals (pancreatin, pepsin, etc.).....				
130					
131	All other products.....	\$508,314	\$608,671	\$269,468	\$55,090
132	Amount received for custom or contract work.....	\$12,250	\$1,600	\$11,780	
	Weight of animals slaughtered (pounds):				
	Beef—				
133	Gross weight on hoof.....	5,167,200	57,468,360	140,864,021	26,676,430
134	Net weight dressed.....	2,853,672	29,580,449	73,538,221	14,158,427
	Sheep—				
135	Gross weight on hoof.....	3,674,288	2,662,623	7,652,021	8,205,846
136	Net weight dressed.....	1,956,313	1,381,312	3,711,420	3,785,452
	Hogs—				
137	Gross weight on hoof.....	35,474,217	165,169,424	289,073,523	13,219,813
138	Net weight dressed.....	27,325,824	131,095,578	226,231,393	10,314,994
	Calves—				
139	Gross weight on hoof.....	1,554,520	928,966	7,626,772	472,120
140	Net weight dressed.....	1,037,366	655,436	4,315,610	293,980
	Power:				
141	Number of establishments reporting.....	16	42	53	11
142	Total horsepower.....	533	3,116	4,023	372
	Owned—				
	Engines—				
	Steam—				
143	Number.....	16	62	107	12
144	Horsepower.....	439	2,501	3,779	324
	Gas and gasoline—				
145	Number.....	1		1	
146	Horsepower.....	5		4	
	Water wheels—				
147	Number.....				
148	Horsepower.....				
	Water motors—				
149	Number.....				1
150	Horsepower.....				3
	Electric motors—				
151	Number.....	3	13	14	3
152	Horsepower.....	42	196	196	45
153	Other power, horsepower.....				
	Rented—				
	Electric motors—				
154	Number.....	3	34	6	
155	Horsepower.....	47	419	44	
156	Furnished to other establishments, horsepower.....				

SLAUGHTERING AND MEAT PACKING.

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SUMMARY, BY STATES AND TERRITORIES: 1905—(Continued.)

Pennsylvania.	Rhode Island.	Tennessee.	Texas.	Utah.	Virginia.	Washington.	West Virginia.	Wisconsin.	All other states.	
\$24,411,797	\$2,499,440	\$318,032	\$15,620,931	\$653,314	\$1,996,338	\$6,251,705	\$1,928,017	\$16,060,423	\$3,958,253	85
57,583,276		427,500	105,988,268	6,382,120	4,125,000	33,548,474	3,977,800	28,643,340	7,073,450	86
\$4,681,190		\$27,787	\$4,954,013	\$373,514	\$271,100	\$2,253,838	\$312,021	\$1,712,783	\$457,306	87
			298,180							88
			\$12,490							89
924,173			2,020,874	25,400	5,000	242,270		135,040	167,000	90
\$88,394			\$144,727	\$1,420	\$250	\$21,271		\$6,690	\$9,202	91
5,611,486		12,925	1,670,045	1,414,405	279,500	8,355,285	135,480	2,389,517	671,920	92
\$551,506		\$904	\$127,578	\$87,780	\$29,370	\$610,336	\$12,962	\$172,180	\$51,133	93
4,123,742		8,100	9,674,766	301,000	542,400	761,286	223,368	2,594,829	755,414	94
\$446,269		\$486	\$598,968	\$27,440	\$55,840	\$61,700	\$22,535	\$201,725	\$62,641	95
33,993,657	3,724,440	398,349	9,596,282	303,075	4,126,419	8,092,695	4,440,840	35,997,546	8,016,512	96
\$3,052,386	\$353,079	\$14,496	\$713,549	\$21,596	\$364,788	\$699,795	\$363,340	\$2,447,493	\$639,560	97
11,175,853	6,522,947	681,688	11,688,737	56,500	1,959,535	1,945,570	1,093,120	60,456,880	11,223,297	98
\$931,356	\$497,013	\$57,784	\$958,664	\$5,020	\$160,994	\$126,207	\$89,312	\$4,407,448	\$946,565	99
66,591,209	8,439,327	1,398,904	14,570,855	153,500	5,869,515	8,954,554	11,636,260	40,017,552	11,964,747	100
\$6,747,693	\$873,134	\$134,125	\$1,448,276	\$17,040	\$630,770	\$1,179,519	\$967,388	\$3,838,384	\$970,560	101
22,812,772	2,581,420	84,007	8,497,917	302,600	2,623,068	1,404,442	681,780	12,621,837	2,050,936	102
\$2,002,886	\$211,946	\$6,460	\$436,890	\$23,742	\$156,025	\$108,430	\$52,110	\$939,509	\$288,578	103
13,498,980	1,900,000	11,550	9,523,500	7,000	1,008,000	1,076,070		350,000	236,735	104
\$939,079	\$186,000	\$693	\$380,941	\$845	\$52,740	\$96,546		\$26,500	\$19,356	105
			\$46,028							106
27,563,977	5,077,400	167,750	38,485,549	65,200	2,438,223	3,582,649	372,050	14,374,000	4,740,090	107
\$2,024,711	\$363,218	\$12,370	\$2,715,032	\$5,964	\$459,699	\$288,548	\$26,760	\$995,249	\$232,496	108
6,458,996	20,800	100,498	491,976	6,000	37,650	201,017	50,000	2,485,549		109
\$500,657	\$1,560	\$9,424	\$33,877	\$480	\$2,980	\$18,920	\$4,000	\$197,795		110
294,628			243,416					49,350		111
\$147,314			\$112,671					\$25,168		112
705,531			3,200					120,200	875	113
\$321,649			\$1,600					\$44,630	\$550	114
			12,727,369							115
			\$354,476							116
3,211		100	5,043			333	160	1,119	315	117
\$57,090		\$2,050	\$135,028			\$20,000	\$3,500	\$28,081	\$4,075	118
4,291	922		522		494	348		2,073	570	119
\$63,600	\$11,536		\$9,240		\$8,145	\$10,000		\$45,714	\$13,980	120
			2,000					481,986	40,000	121
			\$142					\$33,273	\$900	122
138,343		950	304,896	12,790	13,220	59,833	9,748	60,459	16,486	123
7,142,749		49,500	17,766,494	604,000	448,480	3,416,270	450,940	3,556,922	773,690	124
\$711,557		\$4,716	\$1,565,481	\$61,447	\$23,724	\$317,169	\$43,704	\$323,231	\$69,069	125
143,478		235	49,831	26,371	7,150	179,819	4,204	55,846	15,623	126
\$116,548		\$152	\$31,315	\$22,218	\$6,043	\$196,084	\$4,048	\$57,553	\$14,029	127
7,000								1,000		128
\$1,260								\$190		129
\$200										130
\$1,023,457	\$1,954	\$21,605	\$842,055	\$4,808	\$63,370	\$243,342	\$26,337	\$454,432	\$178,253	131
\$2,995		\$5,000	\$920		\$7,500			\$2,375		132
112,105,904		855,000	237,588,021	13,029,600	6,704,000	60,947,960	7,410,411	56,536,135	14,089,820	133
60,589,064		427,500	120,696,781	6,390,120	4,130,000	33,687,921	3,978,018	29,415,074	7,095,450	134
11,340,860		23,500	4,201,595	2,849,810	558,000	18,071,330	286,400	4,867,245	1,334,995	135
5,698,408		12,925	2,032,765	1,414,405	279,500	8,357,339	135,480	2,397,461	671,920	136
188,883,961	23,457,480	3,825,521	66,510,641	736,300	17,977,156	28,583,671	25,552,000	200,784,666	49,233,476	137
149,728,354	18,487,340	3,105,488	49,692,252	584,200	14,001,644	20,913,736	20,466,200	156,418,214	39,446,099	138
6,982,731		10,800	21,336,570	475,075	912,000	1,232,244	379,173	3,871,702	1,155,980	139
4,140,102		8,100	12,298,662	301,000	542,400	761,286	223,368	2,597,322	755,414	140
172										141
6,820	6	4	9	2	11	563	4	14	8	142
	242	855	5,355	25	720		701	2,340	877	142
117	6	11	23	1	13	15	10	24	11	143
6,107	138	855	2,086	10	650	481	515	2,239	757	144
3							120	1		145
68								7		146
										147
										148
										149
										150
										151
43			176		3	2	8	11	11	151
495			3,269		70	13	66	85	30	152
										153
										154
3	15			1		5		2	5	154
150	104			15		64		9	90	155
55			185							156

MANUFACTURES.

TABLE 13.—SLAUGHTERING, WHOLESALE, NOT INCLUDING MEAT PACKING—

	United States.	California.	Colorado.	Illinois.	Indiana.	Iowa.	Kansas.	Kentucky.
1 Number of establishments.....	370	32	4	9	14	6	5	11
2 Capital, total.....	\$17,896,063	\$1,359,848	\$135,247	\$425,100	\$243,575	\$89,160	\$343,536	\$14,035
3 Land.....	\$1,692,986	\$187,000	\$11,000	\$200	\$39,925	\$17,941	\$24,100	\$1,450
4 Buildings.....	\$3,641,637	\$249,616	\$26,500	\$94,300	\$57,600	\$33,600	\$99,004	\$4,850
5 Machinery, tools, and implements.....	\$2,221,994	\$72,893	\$32,000	\$39,600	\$51,150	\$8,355	\$106,821	\$1,085
6 Cash and sundries.....	\$10,339,446	\$850,339	\$65,747	\$291,000	\$94,900	\$29,264	\$113,611	\$6,650
7 Proprietors and firm members.....	478	39	3	25	16	5	6	8
8 Salaried officials, clerks, etc.: Total number.....	669	75	4	19	14	6	23	.....
9 Total salaries.....	\$885,570	\$97,860	\$3,920	\$20,584	\$12,900	\$2,810	\$22,205	.....
10 Officers of corporations— Number.....	46	13	.....	.....	2	1	2	.....
11 Salaries.....	\$157,247	\$34,400	.....	.....	\$1,600	\$250	\$3,999	.....
12 General superintendents, managers, clerks, etc.— Total number.....	623	62	4	19	12	5	21	.....
13 Total salaries.....	\$728,323	\$63,460	\$3,920	\$20,584	\$11,300	\$2,560	\$18,206	.....
14 Men— Number.....	533	56	4	17	12	5	18	.....
15 Salaries.....	\$679,505	\$57,760	\$3,920	\$19,544	\$11,300	\$2,560	\$17,558	.....
16 Women— Number.....	90	6	.....	2	.....	.....	3	.....
17 Salaries.....	\$48,818	\$5,700	.....	\$1,040	.....	.....	\$648	.....
18 Wage-earners, including pieceworkers, and total wages: Greatest number employed at any one time during the year.....	5,308	292	24	396	82	42	228	11
19 Least number employed at any one time during the year.....	3,473	246	19	231	69	35	103	8
20 Average number.....	4,541	270	22	270	73	33	133	10
21 Total wages.....	\$3,236,573	\$240,307	\$17,089	\$168,503	\$41,004	\$21,277	\$78,842	\$4,138
22 Men 16 years and over— Average number.....	4,521	268	22	270	71	33	131	9
23 Wages.....	\$3,230,489	\$239,107	\$17,089	\$168,503	\$40,504	\$21,277	\$78,214	\$4,010
24 Women 16 years and over— Average number.....	9	.....	.....	.....	2	.....	1	.....
25 Wages.....	\$3,040	.....	.....	.....	\$500	.....	\$380	.....
26 Children under 16 years— Average number.....	11	2	.....	.....	.....	.....	1	1
27 Wages.....	\$3,044	\$1,200	.....	.....	.....	.....	\$248	\$126
28 Average number of wage-earners, including pieceworkers, employed during each month: Men 16 years and over— January.....	4,571	254	20	260	65	38	151	9
29 February.....	4,549	256	20	231	65	32	168	9
30 March.....	4,503	265	20	232	65	29	170	9
31 April.....	4,427	264	19	236	69	31	163	9
32 May.....	4,422	273	19	253	70	31	167	9
33 June.....	4,445	276	23	253	70	30	173	8
34 July.....	4,301	279	23	260	70	30	142	8
35 August.....	4,389	284	24	347	70	31	61	8
36 September.....	4,571	283	24	296	73	33	37	9
37 October.....	4,645	268	24	287	76	32	111	10
38 November.....	4,765	259	24	301	79	40	113	10
39 December.....	4,664	255	24	284	80	39	116	10
40 Women 16 years and over— January.....	10	.....	.....	.....	2	.....	2	.....
41 February.....	10	.....	.....	.....	2	.....	2	.....
42 March.....	9	.....	.....	.....	2	.....	1	.....
43 April.....	9	.....	.....	.....	2	.....	1	.....
44 May.....	10	.....	.....	.....	2	.....	2	.....
45 June.....	9	.....	.....	.....	2	.....	1	.....
46 July.....	8	.....	.....	.....	2	.....	.....	.....
47 August.....	8	.....	.....	.....	2	.....	.....	.....
48 September.....	8	.....	.....	.....	2	.....	.....	.....
49 October.....	9	.....	.....	.....	2	.....	1	.....
50 November.....	9	.....	.....	.....	2	.....	1	.....
51 December.....	9	.....	.....	.....	2	.....	1	.....
52 Children under 16 years— January.....	8	2	.....	.....	.....	.....	1	.....
53 February.....	8	2	.....	.....	.....	.....	1	.....
54 March.....	9	2	.....	.....	.....	.....	2	.....
55 April.....	11	2	.....	.....	.....	.....	2	.....
56 May.....	14	2	.....	.....	.....	.....	2	3
57 June.....	13	2	.....	.....	.....	.....	1	3
58 July.....	12	2	.....	.....	.....	.....	.....	3
59 August.....	12	2	.....	.....	.....	.....	.....	3
60 September.....	15	2	.....	.....	.....	.....	.....	.....
61 October.....	14	2	.....	.....	.....	.....	1	.....
62 November.....	8	2	.....	.....	.....	.....	1	.....
63 December.....	8	2	.....	.....	.....	.....	1	.....
64 Miscellaneous expenses, total.....	\$2,599,111	\$163,080	\$13,002	\$89,479	\$19,628	\$11,996	\$174,056	\$1,974
65 Rent of works.....	\$278,569	\$22,740	\$175	\$11,973	\$1,350	\$2,380	\$600	\$100
66 Taxes.....	\$117,756	\$5,655	\$1,075	\$710	\$1,723	\$717	\$1,157	\$99
67 Rent of offices, interest, insurance, and all other sundry expenses not hitherto included.....	\$2,116,062	\$128,649	\$11,752	\$74,733	\$16,555	\$8,899	\$172,299	\$1,775
68 Contract work.....	\$86,724	\$6,036	.....	\$2,063	.....	.....	.....	.....
69 Materials used, total cost.....	\$99,626,900	\$8,293,839	\$375,917	\$6,498,693	\$1,399,765	\$292,948	\$1,465,374	\$174,429
70 Animals slaughtered— Beefes— Number.....	1,166,111	146,306	5,218	115,265	20,792	5,140	38,891	3,585
71 Cost.....	\$55,524,510	\$5,317,473	\$187,380	\$3,771,771	\$652,140	\$161,014	\$1,224,834	\$111,230
72 Sheep— Number.....	3,863,542	613,502	35,812	240,381	8,525	2,479	20,413	8,380
73 Cost.....	\$16,600,544	\$1,958,148	\$150,936	\$897,339	\$31,369	\$10,222	\$65,100	\$21,310
74 Hogs— Number.....	2,350,571	56,159	1,800	176,000	64,860	18,450	16,058	1,100
75 Cost.....	\$16,439,409	\$523,182	\$18,000	\$1,760,000	\$589,700	\$82,338	\$137,542	\$3,300
76 Calves— Number.....	786,176	29,259	500	7,527	13,340	4,285	2,110	5,735
77 Cost.....	\$6,849,206	\$258,419	\$3,600	\$50,182	\$115,312	\$25,332	\$15,076	\$37,295
78 All other animals.....	\$8,500	.....	.....	.....	.....	.....	.....	.....
79 Dressed meat, purchased fresh or partially cured (to be manufactured). Fuel.....	\$136,688	.....	\$9,000	.....	.....	\$9,756	.....	.....
80 Rent of power and heat.....	\$279,983	\$2,754	\$1,690	\$15,306	\$6,618	\$1,760	\$6,663	\$203
81 Mill supplies.....	\$12,192	\$4,952	.....	\$300	.....	.....	\$240	.....
82 All other materials.....	\$29,207	\$732	\$111	\$3,574	\$601	\$136	\$219	.....
83 Freight.....	\$2,478,162	\$39,150	\$1,200	\$221	\$3,825	\$2,090	\$15,700	\$1,091
84	\$1,268,499	\$189,029	\$4,000	.....	\$200	\$300	.....	.....

¹ Includes establishments distributed as follows: Alabama, 1; Connecticut, 2; Delaware, 1; District of Columbia, 1; Florida, 1; Georgia, 1; Louisiana, 2; Montana, 1; Nebraska, 2; Oklahoma, 2; Tennessee, 1; Texas, 1; Vermont, 2; Virginia, 1; Washington, 1; West Virginia, 1; Wisconsin, 2.

SLAUGHTERING AND MEAT PACKING.

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DETAILED SUMMARY, BY STATES AND TERRITORIES: 1905.

Maine.	Maryland.	Massachu- setts.	Michigan.	Minnesota.	Missouri.	New Jersey.	New York.	North Caro- lina.	Ohio.	Pennsyl- vania.	All other states. ¹	
281,680	23,531	1,623,615	96,370	141,150	78,460	877,077	9,550,115	58,389	289,066	775,190	1,490,919	1
19,000		98,361	8,200	25,000	5,000	85,300	719,404	17,000	62,100	82,850	308,555	2
88,216	6,300	412,390	22,300	48,100	12,500	173,800	1,549,252	37,250	90,150	123,800	542,109	3
17,295	1,625	206,347	14,150	17,300	24,400	74,900	1,129,525	11,139	39,545	79,505	294,359	4
157,169	15,606	906,517	51,720	50,150	36,560	543,077	6,151,934	23,000	97,271	509,035	345,896	5
11	12	30	12	10	10	40	74	7	47	100	23	6
14	1	99	6	13	2	32	263	3	11	35	49	7
8,085	312	121,783	9,560	11,370	3,000	40,737	427,336	3,000	8,866	37,106	54,136	8
		5	1	2	2	2	8				8	9
		17,848	4,000	1,800	3,000	3,900	75,000				11,450	10
14	1	94	5	11		30	255	3	11	35	41	11
8,085	312	103,935	5,560	9,570		36,837	352,336	3,000	8,866	37,106	42,686	12
11		87	4	8		29	205	3	8	29	37	13
7,305		98,591	5,080	8,200		36,417	325,670	3,000	7,816	34,038	40,446	14
3	1	7	1	3		1	50		3	6	4	15
780	312	5,044	480	1,370		420	26,666		1,050	3,068	2,240	16
224	29	644	57	67	74	417	1,852	26	133	330	380	17
77	26	413	43	37	53	251	1,150	17	120	297	278	18
147	28	538	49	42	62	297	1,805	20	125	309	308	19
78,432	15,194	335,880	31,617	24,340	35,168	192,004	1,490,708	8,160	77,391	201,369	175,152	20
144	28	534	40	42	60	297	1,805	20	125	308	305	21
77,536	15,194	335,040	31,617	24,340	34,492	192,004	1,490,708	8,160	77,391	201,035	174,268	22
2		1			2						1	23
800		320			676						364	24
1		3								1	2	25
96		520								334	520	26
												27
132	28	565	44	37	58	292	1,841	23	127	305	302	28
122	28	566	44	61	58	280	1,849	23	122	308	307	29
149	28	530	49	38	59	279	1,823	23	123	306	306	30
136	27	495	48	37	60	285	1,806	23	121	300	298	31
117	29	452	54	36	59	290	1,811	23	123	309	297	32
73	29	464	47	38	63	294	1,840	22	125	314	293	33
79	29	492	44	44	68	280	1,721	17	125	316	294	34
171	28	556	44	44	65	278	1,628	17	125	314	294	35
200	28	565	44	45	64	285	1,822	17	126	312	308	36
196	28	572	57	45	58	285	1,827	17	127	302	323	37
194	28	575	57	40	54	385	1,842	17	127	302	318	38
179	26	556	56	39	54	331	1,850	18	129	308	310	39
2		1			2						1	40
2		1			2						1	41
2		1			2						1	42
2		1			2						1	43
2		1			2						1	44
2		1			2						1	45
2		1			2						1	46
2		1			2						1	47
2		1			2						1	48
2		1			2						1	49
2		1			2						1	50
2		1			2						1	51
		2								1	2	52
		2								1	2	53
		2								1	2	54
4		4								1	2	55
4		4								1	2	56
4		4								1	2	57
4		4								1	2	58
4		4								1	2	59
4		4								1	2	60
6		2								1	2	61
6		2								1	2	62
		2								1	2	63
43,195	8,012	184,357	12,551	16,055	7,104	160,280	1,380,175	3,936	21,059	167,379	121,793	64
2,600	2,026	23,966	506	2,525	2,196	20,905	111,817		2,892	56,032	13,786	65
884	145	12,049	1,075	745	523	12,656	62,582	200	1,817	3,173	10,711	66
39,711	4,221	148,342	10,970	11,160	4,385	97,240	1,167,125	3,676	16,350	100,924	97,296	67
	1,620			1,625		29,479	38,651			7,250		68
475,131	321,627	5,921,656	1,114,535	684,132	520,559	11,310,804	45,628,748	164,895	2,094,110	6,932,141	5,957,597	69
2,059	3,580	67,669	25,225	15,660	6,288	33,809	421,313	4,057	46,599	98,179	106,476	70
64,108	132,200	3,117,487	866,400	496,529	186,533	1,618,388	27,627,013	117,208	1,539,529	5,163,388	3,169,885	71
51,167	37,074	418,580	42,710	41,060	7,185	443,198	1,498,038	6,062	49,968	220,016	118,992	72
187,134	125,353	1,826,403	176,175	129,575	27,090	2,128,345	7,281,427	15,607	173,436	956,539	438,976	73
12,121		19,964	1,010	4,661	24,546	1,052,252	739,719	1,221	12,940	24,371	123,339	74
152,975		201,951	10,080	32,931	238,976	6,578,496	4,761,144	11,450	131,744	226,096	979,504	75
2,477	9,234	88,314	8,110	2,442	8,988	92,469	288,309	1,741	31,905	60,217	129,214	76
12,865	61,324	641,038	55,110	13,436	50,320	870,605	2,569,653	7,665	238,920	556,017	1,267,037	77
80					2,500			5,000			1,000	78
						3,500	102,362	500		11,490		79
4,621	150	21,156	2,585	3,204	5,470	7,801	138,565	900	4,735	10,869	44,933	80
		2,800			240	925	875		860		2,300	81
345		1,503	485	85	1,060	510	14,087	55	822	1,420	3,682	82
52,227	2,500	106,835	3,100	7,142	8,170	9,903	2,199,967	6,450	4,264	4,597	9,730	83
776	100	2,483	600	1,250	200	92,331	934,455		500	1,725	40,550	84

TABLE 13.—SLAUGHTERING, WHOLESALE, NOT INCLUDING MEAT PACKING—

		United States.	California.	Colorado.	Illinois.	Indiana.	Iowa.	Kansas.	Kentucky.
85	Products, total value.....	\$112,157,487	\$9,589,978	\$464,135	\$7,352,452	\$1,713,583	\$359,333	\$1,673,261	\$223,820
	Beef—								
	Sold fresh (exclusive of purchased dressed fresh beef)—								
86	Pounds.....	668,397,381	82,451,380	2,943,800	52,835,225	10,698,015	2,637,522	18,744,785	1,962,000
87	Value.....	\$50,584,218	\$5,246,624	\$197,541	\$3,378,551	\$709,689	\$172,307	\$1,225,548	\$132,440
	Salted and cured—								
88	Pounds.....	7,375,489				15,000	5,000		
89	Value.....	\$331,472				\$1,500	\$400		
	Mutton, sold fresh (exclusive of purchased dressed fresh mutton)—								
90	Pounds.....	159,707,652	23,225,621	1,629,338	10,232,675	390,125	105,801	1,011,749	315,000
91	Value.....	\$14,233,729	\$1,949,398	\$157,844	\$794,250	\$34,891	\$8,394	\$88,871	\$22,320
	Veal, sold fresh (exclusive of purchased dressed fresh veal)—								
92	Pounds.....	76,652,802	4,454,931	50,000	590,020	1,249,880	354,540	219,805	425,200
93	Value.....	\$7,139,377	\$301,679	\$5,000	\$50,998	\$110,705	\$29,245	\$16,433	\$35,730
	Pork—								
	Sold fresh (exclusive of purchased dressed fresh pork)—								
94	Pounds.....	267,734,763	6,917,870	350,000	34,200,000	9,320,100	1,307,326	2,341,599	48,200
95	Value.....	\$17,614,143	\$537,512	\$28,000	\$2,097,000	\$676,494	\$88,103	\$134,902	\$3,374
	Salted—								
96	Pounds.....	74,900	6,000				68,500		
97	Value.....	\$6,737	\$600				\$6,105		
	Hams, smoked bacon, sides, and shoulders—								
98	Pounds.....	177,166					96,166		
99	Value.....	\$16,660					\$9,340		
	Sausage, fresh and cured—								
100	Pounds.....	1,929,863	31,200			300	83,942		
101	Value.....	\$161,430	\$2,500			\$21	\$6,840		
	All other meat, sold fresh (exclusive of purchased dressed fresh meat)—								
102	Pounds.....	389,400		122,000		60,000			
103	Value.....	\$26,389		\$8,900		\$3,000			
	Refined lard—								
104	Pounds.....	5,102,445	5,200		427,000	169,900	149,466		
105	Value.....	\$311,167	\$415		\$30,000	\$8,715	\$11,009		
	Neutral lard—								
106	Pounds.....	1,582,617				20,000		8,000	
107	Value.....	\$98,964				\$1,600		\$480	
	Oleomargarine oil—								
108	Gallons.....	3,746,450							
109	Value.....	\$2,135,544							
	Other oils—								
110	Gallons.....	1,305,101							
111	Value.....	\$803,620							
	Soap—								
112	Pounds.....	57,600							
113	Value.....	\$2,016							
	Fertilizers—								
114	Tons.....	5,735	50	100	180			274	
115	Value.....	\$157,021	\$405	\$2,000	\$2,500			\$6,576	
	Fertilizer materials (bones, offal, tankage, etc.)—								
116	Tons.....	24,570	1,004		12,742	799	5		63
117	Value.....	\$311,861	\$9,620		\$121,700	\$5,293	\$55		\$504
	Glue—								
118	Pounds.....	357	357						
119	Value.....	\$25	\$25						
	Hides—								
120	Number.....	1,644,877	147,721	5,718	115,765	31,722	5,640	40,816	9,320
121	Pounds.....	83,632,468	8,318,943	300,680	5,651,870	1,485,428	303,805	2,077,260	319,450
122	Value.....	\$8,062,657	\$809,039	\$26,904	\$584,595	\$109,047	\$24,406	\$181,474	\$20,428
	Sheep pelts—								
123	Number.....	4,395,860	613,502	35,812	240,381	6,225	2,479	20,413	8,380
124	Value.....	\$2,913,150	\$417,709	\$30,146	\$215,430	\$7,654	\$2,005	\$17,977	\$6,872
	Wool—								
125	Pounds.....	6,705,332	120,000	15,370					
126	Value.....	\$2,619,908	\$30,100	\$2,000					
127	All other products.....	\$4,534,207	\$278,747	\$5,800	\$72,228	\$36,024	\$1,124		\$2,152
128	Amount received for custom or contract work.....	\$93,192	\$5,605		\$5,200	\$8,950		\$1,000	
	Weight of animals slaughtered (pounds):								
	Beef—								
129	Gross weight on the hoof.....	1,256,072,150	157,668,858	5,139,000	102,522,110	20,527,200	5,286,685	35,805,063	3,628,500
130	Net weight dressed.....	674,266,547	80,102,930	2,943,800	52,835,225	10,705,815	2,700,464	19,360,214	1,962,250
	Sheep—								
131	Gross weight on the hoof.....	329,610,000	59,937,685	3,434,640	21,229,550	777,000	212,606	1,865,098	675,000
132	Net weight dressed.....	166,515,699	30,004,871	1,629,338	10,232,675	390,125	106,309	1,011,749	315,000
	Hogs—								
133	Gross weight on the hoof.....	354,849,603	11,600,408	450,000	43,000,000	11,992,000	1,944,950	3,089,920	66,000
134	Net weight dressed.....	278,215,782	6,960,270	350,000	34,200,000	9,422,900	1,512,203	2,349,599	48,200
	Calves—								
135	Gross weight on the hoof.....	126,976,952	8,276,836	85,000	948,293	1,990,550	514,061	355,209	696,500
136	Net weight dressed.....	76,818,660	4,454,931	50,000	590,020	1,249,880	356,540	219,805	425,200
	Power:								
137	Number of establishments reporting.....	118	8	4	5	6	4	4	
138	Total horsepower.....	10,377	295	130	360	122	75	144	
	Owned—								
	Engines—								
	Steam—								
139	Number.....	149	5	4	6	7	4	5	
140	Horsepower.....	8,757	157	127	340	120	75	136	
	Gas and gasoline—								
141	Number.....	4				1			
142	Horsepower.....	18				2			
	Water wheels—								
143	Number.....	5							
144	Horsepower.....	238							
	Water motors—								
145	Number.....	1		1					
146	Horsepower.....	3		3					
	Electric motors—								
147	Number.....	61	1		1				
148	Horsepower.....	1,042	10		20				
	Rented—								
	Electric motors—								
149	Number.....	16	7						
150	Horsepower.....	194	128						
151	Other kind, horsepower.....	125						1	
152	Furnished to other establishments, horsepower.....	145						8	

SLAUGHTERING AND MEAT PACKING.

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DETAILED SUMMARY, BY STATES AND TERRITORIES: 1905—Continued.

Maine.	Maryland.	Massachu- setts.	Michigan.	Minnesota.	Missouri.	New Jersey.	New York.	North Caro- lina.	Ohio.	Pennsyl- vania.	All other states.	
\$648,067	\$369,147	\$6,844,664	\$1,291,845	\$803,431	\$614,374	\$12,187,625	\$50,410,342	\$192,223	\$2,348,160	\$7,909,292	\$7,161,755	85
984,420	1,896,712	40,149,551	11,579,200	7,833,520	2,615,840	19,972,910	281,025,089	1,724,036	21,292,904	59,735,847	47,294,625	86
\$60,972	\$130,931	\$2,778,953	\$812,168	\$439,561	\$214,569	\$1,629,616	\$23,958,278	\$115,694	\$1,425,188	\$4,755,476	\$3,200,112	87
60,000	31,200	200					7,263,089				1,000	88
\$3,900	\$2,028	\$8					\$323,536				\$100	89
2,015,009	1,316,012	16,915,035	2,268,400	2,053,000	237,570	19,511,952	62,053,895	252,838	1,604,614	9,424,322	5,054,696	90
\$167,461	\$117,610	\$1,502,370	\$192,969	\$132,426	\$22,929	\$1,734,960	\$5,850,923	\$16,950	\$150,989	\$888,984	\$399,190	91
173,357	533,372	6,579,461	\$61,870	233,410	548,696	9,143,173	25,771,050	85,090	2,465,072	4,974,081	17,965,794	92
\$14,671	\$57,022	\$583,600	\$73,638	\$15,481	\$47,770	\$963,440	\$2,551,444	\$6,385	\$227,146	\$541,028	\$1,507,962	93
2,268,002		3,967,190	176,500	720,910	2,540,500	108,018,643	75,177,986	127,225	1,645,400	3,340,285	15,267,027	94
\$179,387		\$277,480	\$10,590	\$48,095	\$198,941	\$6,754,374	\$7,058,750	\$10,286	\$121,254	\$243,189	\$1,146,412	95
		400										96
		\$32										97
									78,000	3,000		98
									\$7,020	\$300		99
					145,410		1,348,181		122,880	194,950	3,000	100
					\$9,717		\$107,854		\$11,904	\$22,354	\$240	101
		1,000			5,000				184,800		16,600	102
		\$40			\$100				\$13,349		\$1,000	103
					623,600	1,755,478	1,502,101		363,200	106,500		104
					\$58,671	\$70,215	\$94,968		\$27,924	\$9,250		105
545						1,446,072	54,000		54,000			106
\$38						\$90,825	\$3,510		\$2,511			107
		167,604					3,578,246				600	108
		\$99,825					\$2,035,419				\$300	109
		80,643		1,000			1,200,000			100	23,358	110
		\$44,774		\$500			\$750,000			\$50	\$8,296	111
				57,600								112
				\$2,016								113
				43			4,320	60		548	160	114
				\$588			\$126,882	\$1,200		\$14,170	\$2,700	115
85	11	2,496	545	483	187	1,316	1,723	75	788	365	1,883	116
\$1,417	\$155	\$54,634	\$2,360	\$3,338	\$1,622	\$29,053	\$34,119	\$1,500	\$9,863	\$5,782	\$30,846	117
												118
												119
2,938	12,814	153,883	25,225	15,760	11,912	78,682	547,831	4,758	77,604	157,916	198,852	120
126,597	289,612	6,108,884	1,551,050	903,625	374,240	2,883,199	33,984,115	181,690	3,173,920	7,477,185	8,120,915	121
\$13,423	\$28,553	\$573,118	\$126,514	\$74,830	\$35,205	\$265,516	\$3,501,590	\$11,567	\$264,512	\$758,148	\$653,788	122
51,167	37,074	423,080	42,710	41,060	7,185	443,198	2,029,954	6,062	49,668	220,016	117,494	123
\$29,570	\$11,034	\$144,222	\$38,056	\$33,076	\$7,100	\$547,850	\$1,063,565	\$2,231	\$42,001	\$219,489	\$77,163	124
167,771	60,000	1,153,714					5,187,937			140	400	125
\$58,272	\$15,000	\$517,057					\$1,997,334			\$25	\$120	126
\$58,136	\$6,814	\$267,964	\$35,550	\$53,040	\$17,750	\$101,776	\$2,948,640	\$25,960	\$44,499	\$449,911	\$128,092	127
\$60,820		\$587		\$480			\$3,530	\$450		\$1,136	\$5,434	128
1,921,330	3,595,000	74,808,477	23,692,050	15,772,534	5,159,960	38,146,750	516,347,102	3,408,050	40,417,500	110,103,831	92,122,150	129
1,042,420	1,951,800	40,200,418	11,579,200	8,164,820	2,615,840	19,972,910	287,915,329	1,724,036	21,399,604	59,790,647	47,298,825	130
3,949,850	2,851,540	37,317,281	4,516,500	4,105,500	472,080	36,958,932	118,805,816	505,676	3,394,100	18,974,461	9,626,685	131
2,015,009	1,316,012	16,915,035	2,268,400	2,053,000	237,570	19,511,952	62,068,895	252,838	1,701,814	9,430,411	5,054,696	132
2,837,563		4,972,790	202,000	957,000	4,411,900	142,099,896	100,335,106	177,300	2,784,000	4,465,980	19,462,790	133
2,268,002		3,968,990	176,500	720,910	3,538,300	113,401,701	78,231,986	127,225	2,196,000	3,475,969	15,267,027	134
290,122	947,460	11,354,464	1,277,150	331,240	999,580	14,065,450	39,885,324	158,950	3,984,960	8,411,718	32,404,085	135
173,357	532,772	6,579,463	861,870	232,660	548,696	9,143,173	25,882,930	85,090	2,480,272	4,986,207	17,965,794	136
332		3	3	3	6	7	17	3	11	14	16	137
		272	85	62	97	348	4,484	98	345	726	2,402	138
5		2	3	3	6	7	31	2	10	20	29	139
207		252	85	62	85	238	3,803	45	332	654	2,039	140
												141
					1					2		142
					4					12		
2								2			1	143
125								53			60	144
												145
												146
						2	43				8	147
						85	664			60	203	148
												149
		1			2		2		3			150
		20			8		17		13			151
						25					100	152
							145					

TABLE 14.—COMBINED SLAUGHTERING AND MEAT PACKING—

	United States.	California.	Colorado.	Connecticut.	Idaho.
1 Number of establishments.....	929	59	11	4	3
2 Capital, total.....	\$237,714,690	\$4,835,578	\$1,107,121	\$668,159	\$92,557
3 Land.....	\$15,120,157	\$781,881	\$35,900	\$118,000	\$11,846
4 Buildings.....	\$42,012,377	\$1,003,697	\$263,060	\$376,899	\$23,540
5 Machinery, tools, and implements.....	\$29,992,447	\$446,830	\$116,100	\$79,846	\$10,500
6 Cash and sundries.....	\$150,589,709	\$2,603,170	\$692,061	\$93,414	\$46,671
7 Proprietors and firm members.....	969	58	4	7	2
8 Salaried officials, clerks, etc.:—					
9 Total number.....	11,974	287	52	20	7
10 Total salaries.....	\$13,343,902	\$350,722	\$54,913	\$18,040	\$9,040
11 Officers of corporations—					
12 Number.....	418	23	3	—	4
13 Salaries.....	\$1,198,423	\$67,020	\$4,800	—	\$5,500
14 General superintendents, managers, clerks, etc.—					
15 Total number.....	11,556	264	49	20	7
16 Total salaries.....	\$12,145,479	\$283,702	\$50,113	\$18,040	\$3,540
17 Men—					
18 Number.....	10,559	245	46	16	7
19 Salaries.....	\$11,532,261	\$270,534	\$49,213	\$16,000	\$3,540
20 Women—					
21 Number.....	997	19	3	4	—
22 Salaries.....	\$613,218	\$13,168	\$900	\$2,040	—
23 Wage-earners, including pieceworkers, and total wages.....					
24 Greatest number employed at any one time during the year.....	91,436	1,476	289	337	10
25 Least number employed at any one time during the year.....	51,363	1,095	234	285	10
26 Average number.....	74,134	1,253	247	311	10
27 Total wages.....	\$40,326,972	\$890,658	\$175,419	\$166,236	\$8,160
28 Men 16 years and over—					
29 Average number.....	68,692	1,230	247	311	10
30 Wages.....	\$38,585,653	\$882,820	\$175,419	\$166,236	\$8,160
31 Women 16 years and over—					
32 Average number.....	4,468	14	—	—	—
33 Wages.....	\$1,481,453	\$4,700	—	—	—
34 Children under 16 years—					
35 Average number.....	974	9	—	—	—
36 Wages.....	\$259,866	\$3,138	—	—	—
37 Average number of wage-earners, including pieceworkers, employed during each month:—					
38 Men 16 years and over—					
39 January.....	73,446	1,151	242	336	10
40 February.....	70,826	1,174	244	336	10
41 March.....	69,239	1,137	240	336	10
42 April.....	67,029	1,148	231	286	10
43 May.....	67,935	1,165	222	286	10
44 June.....	69,779	1,168	236	286	10
45 July.....	56,627	1,167	232	286	10
46 August.....	58,202	1,266	239	286	10
47 September.....	66,991	1,367	268	285	10
48 October.....	71,699	1,337	265	335	10
49 November.....	75,087	1,355	276	337	10
50 December.....	77,444	1,325	269	337	10
51 Women 16 years and over—					
52 January.....	4,617	14	—	—	—
53 February.....	4,482	14	—	—	—
54 March.....	4,500	12	—	—	—
55 April.....	4,398	12	—	—	—
56 May.....	4,522	15	—	—	—
57 June.....	4,604	14	—	—	—
58 July.....	2,585	16	—	—	—
59 August.....	2,897	12	—	—	—
60 September.....	4,318	11	—	—	—
61 October.....	5,408	11	—	—	—
62 November.....	5,561	12	—	—	—
63 December.....	5,724	25	—	—	—
64 Children under 16 years—					
65 January.....	943	8	—	—	—
66 February.....	905	8	—	—	—
67 March.....	884	9	—	—	—
68 April.....	897	9	—	—	—
69 May.....	929	8	—	—	—
70 June.....	1,023	8	—	—	—
71 July.....	890	8	—	—	—
72 August.....	944	9	—	—	—
73 September.....	1,137	10	—	—	—
74 October.....	1,048	10	—	—	—
75 November.....	1,029	10	—	—	—
76 December.....	1,059	10	—	—	—
77 Miscellaneous expenses, total.....	\$30,631,359	\$655,782	\$134,052	\$47,937	\$9,067
78 Rent of works.....	\$569,109	\$33,123	\$475	\$60	\$75
79 Taxes.....	\$1,017,699	\$19,136	\$7,445	\$3,590	\$719
80 Rent of offices, interest, insurance, and all other sundry expenses not hitherto included.....	\$28,943,208	\$597,487	\$126,132	\$44,287	\$8,273
81 Contract work.....	\$101,343	\$6,036	—	—	—
82 Materials used, total cost.....	\$805,856,969	\$18,618,549	\$2,781,789	\$2,667,668	\$120,431
83 Animals slaughtered—					
84 Bees—					
85 Number.....	7,147,835	259,716	28,257	—	2,388
86 Cost.....	\$289,040,930	\$9,735,012	\$975,754	—	\$59,665
87 Sheep—					
88 Number.....	10,875,339	990,514	63,822	24,294	4,394
89 Cost.....	\$44,359,804	\$3,284,003	\$254,293	\$86,647	\$12,135
90 Hogs—					
91 Number.....	30,977,639	314,085	108,741	172,567	4,038
92 Cost.....	\$329,765,480	\$2,891,457	\$1,307,780	\$2,485,400	\$40,442
93 Calves—					
94 Number.....	1,568,130	43,100	3,958	5,820	822
95 Cost.....	\$12,665,557	\$412,644	\$30,680	\$47,289	\$6,123
96 All other animals.....	\$61,905	—	—	—	—
97 Dressed meat purchased fresh, or partially cured (to be manufactured).....	\$53,114,957	\$1,439,004	\$144,200	\$5,200	—
98 Fuel.....	\$4,639,315	\$66,549	\$24,961	\$13,282	\$1,096
99 Rent of power and heat.....	\$117,098	\$16,791	\$1,100	—	\$480
100 Mill supplies.....	\$571,586	\$6,411	\$1,121	\$800	\$40
101 All other materials.....	\$69,004,209	\$553,695	\$37,900	\$21,550	\$450
102 Freight.....	\$2,516,128	\$212,983	\$4,000	\$7,500	—

SLAUGHTERING AND MEAT PACKING.

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DETAILED SUMMARY, BY STATES AND TERRITORIES: 1905.

Illinois.	Indiana.	Iowa.	Kansas.	Kentucky.	Maryland.	Massachusetts.	Michigan.	
68	42	19	22	22	37	42	18	1
\$80,477,268	\$7,358,006	\$7,297,359	\$25,332,330	\$1,464,299	\$1,285,633	\$12,755,034	\$1,349,137	2
\$3,941,272	\$340,693	\$156,941	\$1,166,292	\$43,498	\$62,253	\$1,039,561	\$111,250	3
\$12,493,532	\$1,508,642	\$1,831,608	\$4,465,146	\$148,726	\$219,671	\$2,511,847	\$231,116	4
\$9,458,938	\$1,034,743	\$889,408	\$3,375,852	\$222,385	\$149,855	\$1,385,610	\$119,100	5
\$54,583,526	\$4,473,928	\$4,419,342	\$16,325,040	\$1,049,660	\$853,854	\$7,818,016	\$887,671	6
71	38	11	19	30	52	37	19	7
5,633	195	284	983	46	60	403	63	8
\$6,559,729	\$247,355	\$298,856	\$983,690	\$44,379	\$58,336	\$392,354	\$65,289	9
55	20	20	12	5	6	17	4	10
\$209,618	\$44,550	\$51,750	\$56,754	\$9,917	\$4,580	\$58,639	\$10,500	11
5,578	175	264	971	41	54	386	59	12
\$6,350,111	\$202,805	\$247,106	\$926,936	\$34,462	\$49,756	\$333,715	\$54,789	13
5,133	166	239	900	40	49	347	50	14
\$6,054,527	\$198,929	\$234,529	\$883,173	\$34,150	\$46,992	\$311,499	\$50,744	15
445	9	25	71	1	5	39	9	16
\$295,534	\$3,876	\$12,577	\$43,763	\$312	\$2,764	\$22,216	\$4,045	17
34,271	3,532	4,112	11,463	612	573	3,334	515	18
14,023	2,555	2,269	7,896	384	2,679	2,679	434	19
26,953	3,140	3,088	9,392	472	540	2,871	469	20
\$14,560,777	\$1,362,552	\$1,323,468	\$4,836,095	\$243,098	\$307,996	\$1,501,085	\$248,959	21
24,173	2,807	2,821	8,382	470	536	2,822	468	22
\$13,640,653	\$1,261,045	\$1,267,391	\$4,532,437	\$242,732	\$307,320	\$1,490,164	\$248,569	23
2,700	284	130	688	1	-----	21	1	24
\$904,842	\$91,201	\$29,850	\$202,917	\$240	-----	\$4,891	\$390	25
80	49	137	322	1	4	28	-----	26
\$15,282	\$10,306	\$26,227	\$100,741	\$126	\$676	\$6,030	-----	27
28,194	2,911	3,317	7,944	509	545	3,030	485	28
27,035	2,749	3,009	7,899	458	546	3,049	458	29
26,237	2,583	2,664	7,762	329	542	2,829	458	30
24,937	2,427	2,409	7,951	366	540	2,664	454	31
25,046	2,561	2,581	8,114	397	542	2,602	447	32
25,157	2,809	2,826	8,226	421	529	2,712	460	33
15,085	3,002	2,742	8,014	517	528	2,757	455	34
15,484	2,939	2,728	8,700	512	525	2,787	456	35
21,944	2,886	2,662	9,079	499	516	2,835	458	36
25,535	2,820	2,607	9,050	523	530	2,830	478	37
27,034	2,945	2,878	9,064	547	545	2,841	503	38
28,388	3,052	3,429	8,781	562	544	2,928	504	39
2,937	293	137	601	1	-----	26	1	40
2,884	288	126	610	1	-----	24	1	41
2,891	253	116	616	1	-----	24	1	42
2,715	249	108	668	1	-----	21	1	43
2,823	252	123	662	1	-----	19	1	44
2,881	288	138	631	1	-----	19	1	45
1,066	318	136	606	1	-----	17	1	46
1,278	316	118	670	1	-----	17	1	47
2,438	277	124	803	1	-----	19	1	48
3,408	272	136	821	1	-----	21	1	49
3,499	284	145	785	1	-----	24	1	50
3,580	318	153	783	1	-----	24	1	51
79	50	158	284	-----	4	26	-----	52
78	50	152	284	-----	4	25	-----	53
84	45	120	301	-----	4	26	-----	54
80	40	112	309	-----	4	29	-----	55
80	45	124	308	3	4	28	-----	56
84	50	146	316	3	4	30	-----	57
89	52	126	302	3	4	32	-----	58
70	52	122	338	3	4	32	-----	59
89	48	148	370	-----	4	30	-----	60
80	50	136	361	-----	4	27	-----	61
81	50	132	361	-----	4	26	-----	62
86	56	168	330	-----	4	25	-----	63
\$12,962,530	\$591,098	\$709,738	\$3,724,073	\$126,858	\$152,423	\$830,691	\$150,440	64
\$90,002	\$8,060	\$10,300	\$690	\$1,480	\$14,323	\$26,966	\$2,606	65
\$319,492	\$43,366	\$13,613	\$144,797	\$6,539	\$7,238	\$94,371	\$12,808	66
\$12,550,813	\$539,672	\$685,825	\$3,576,361	\$118,839	\$128,387	\$708,020	\$135,026	67
\$2,223	-----	-----	\$2,225	-----	\$2,475	\$1,334	-----	68
\$279,854,559	\$26,193,351	\$27,188,659	\$85,145,905	\$4,595,466	\$5,787,699	\$33,242,733	\$5,520,647	69
2,643,028	178,678	91,564	1,019,553	17,555	9,425	68,103	26,405	70
\$110,026,678	\$7,334,344	\$3,127,120	\$38,106,588	\$646,432	\$306,000	\$3,141,989	\$904,800	71
3,634,216	33,126	13,071	771,818	12,336	37,074	418,580	44,710	72
\$15,155,386	\$136,035	\$50,249	\$2,826,354	\$32,945	\$125,353	\$1,826,403	\$183,175	73
7,854,370	1,498,767	2,070,473	3,089,611	377,280	631,746	1,549,365	288,603	74
\$88,459,545	\$15,751,263	\$22,489,860	\$33,696,168	\$3,764,508	\$4,250,344	\$21,468,261	\$3,424,627	75
295,928	37,566	8,546	92,751	6,986	9,234	88,651	9,560	76
\$2,097,500	\$321,090	\$55,512	\$732,227	\$43,097	\$61,324	\$643,262	\$63,910	77
\$11,872	\$6,116	\$2,000	-----	\$30	-----	\$665	-----	78
\$18,977,058	\$1,510,718	\$100,035	\$5,013,185	\$17,190	\$726,818	\$5,106,112	\$843,036	79
\$1,399,919	\$158,933	\$185,481	\$666,593	\$29,062	\$43,718	\$153,457	\$28,148	80
\$54,315	\$255	\$4,249	\$1,090	-----	\$800	\$4,282	-----	81
\$189,378	\$10,453	\$10,521	\$66,099	\$2,049	\$5,411	\$18,715	\$2,974	82
\$43,255,205	\$916,755	\$1,148,448	\$4,028,598	\$59,834	\$171,386	\$771,729	\$56,662	83
\$227,703	\$47,389	\$15,184	\$9,003	\$319	\$96,545	\$108,523	\$12,690	84

TABLE 14.—COMBINED SLAUGHTERING AND MEAT PACKING—DETAILED

		United States.	California.	Colorado.	Connecticut.	Idaho.
85	Products, total value.....	\$913,914,624	\$21,795,694	\$3,323,503	\$2,974,374	\$158,975
	Beef—					
	Sold fresh (exclusive of purchased dressed fresh beef)—					
86	Pounds.....	3,748,055,377	140,301,999	15,589,690		1,215,200
87	Value.....	\$247,096,724	\$9,135,362	\$1,091,076		\$66,821
	Canned—					
88	Pounds.....	98,663,931	310,499			
89	Value.....	\$7,697,815	\$18,370			
	Salted and cured —					
90	Pounds.....	136,896,697	2,386,927	5,000		
91	Value.....	\$8,107,952	\$171,352	\$500		
	Mutton, sold fresh (exclusive of purchased dressed fresh mutton)					
92	Pounds.....	460,754,244	38,021,994	2,790,676	1,361,604	190,825
93	Value.....	\$36,880,455	\$3,089,546	\$256,377	\$98,794	\$14,414
	Veal, sold fresh (exclusive of purchased dressed fresh veal)—					
94	Pounds.....	154,212,652	6,470,074	498,089	548,464	100,900
95	Value.....	\$12,856,369	\$451,602	\$41,583	\$52,864	\$7,510
	Pork—					
	Sold fresh (exclusive of purchased dressed fresh pork)—					
96	Pounds.....	1,224,932,910	22,796,629	3,337,911	7,072,700	362,800
97	Value.....	\$91,749,323	\$1,821,101	\$313,799	\$558,085	\$32,025
	Salted —					
98	Pounds.....	1,558,886,256	4,700,766	4,817,974	10,509,700	7,000
99	Value.....	\$116,626,710	\$461,914	\$333,757	\$858,128	\$560
	Hams, smoked bacon, sides, and shoulders—					
100	Pounds.....	1,364,015,706	18,482,572	6,269,875	10,308,900	152,100
101	Value.....	\$132,210,611	\$2,270,661	\$648,372	\$813,440	\$18,380
	Sausage, fresh and cured —					
102	Pounds.....	324,416,039	4,337,752	1,506,525	1,694,000	32,800
103	Value.....	\$25,056,331	\$449,063	\$117,444	\$262,980	\$2,772
	All other meat, sold fresh (exclusive of purchased dressed fresh meat)—					
104	Pounds.....	124,307,681	350,000	122,000		
105	Value.....	\$9,579,718	\$17,500	\$8,900		
106	Canned goods, value.....	\$8,416,850	\$51,203			
	Refined lard—					
107	Pounds.....	1,048,362,039	7,493,435	2,596,783	3,885,820	65,000
108	Value.....	\$74,116,991	\$569,442	\$179,557	\$165,900	\$6,000
	Neutral lard—					
109	Pounds.....	120,724,361	819,227	16,400		
110	Value.....	\$8,423,973	\$66,058	\$1,640		
	Oleomargarine oil—					
111	Gallons.....	19,454,799				
112	Value.....	\$10,201,911				
	Other oils—					
113	Gallons.....	4,893,133	9,259	1,200		
114	Value.....	\$2,595,951	\$5,707	\$600		
	Soap—					
115	Pounds.....	49,838,856				
116	Value.....	\$1,815,154				
	Fertilizers—					
117	Tons.....	211,137	1,883	667	200	
118	Value.....	\$4,397,626	\$51,691	\$7,903	\$1,700	
	Fertilizer materials (bones, offal, tankage, etc.)—					
119	Tons.....	157,937	1,442	40	537	
120	Value.....	\$2,806,435	\$15,978	\$400	\$12,865	
	Glue—					
121	Pounds.....	17,526,456	357			
122	Value.....	\$1,087,719	\$25			
	Hides—					
123	Number.....	8,039,204	272,042	30,807	1,560	2,388
124	Pounds.....	456,443,857	14,875,563	1,784,820	12,480	122,350
125	Value.....	\$44,206,107	\$1,465,939	\$153,521	\$1,500	\$8,069
	Sheep pelts—					
126	Number.....	11,344,544	990,514	63,822	24,294	4,394
127	Value.....	\$8,964,643	\$742,499	\$52,871	\$14,642	\$2,424
	Wool—					
128	Pounds.....	16,377,333	180,000	15,370		
129	Value.....	\$5,229,521	\$51,100	\$2,000		
130	Fine chemicals (pancreatin, pepsin, etc.).....	\$208,002				
131	All other products.....	\$53,382,908	\$883,976	\$99,356	\$133,476	
132	Amount received for custom or contract work.....	\$198,825	\$5,605	\$13,847		
	Weight of animals slaughtered (pounds):					
	Beef—					
133	Gross weight on the hoof.....	7,485,407,944	269,451,905	28,741,827		2,418,000
134	Net weight dressed.....	4,066,264,877	140,280,064	15,772,470		1,231,500
	Sheep—					
135	Gross weight on the hoof.....	930,168,367	90,931,081	5,899,724	2,307,930	374,450
136	Net weight dressed.....	464,872,621	45,078,913	2,790,076	1,361,604	190,825
	Hogs—					
137	Gross weight on the hoof.....	6,586,349,782	56,111,705	24,526,280	43,754,585	807,600
138	Net weight dressed.....	5,048,832,850	41,142,475	18,406,072	35,203,668	602,100
	Calves—					
139	Gross weight on the hoof.....	261,683,572	11,466,574	868,750	814,800	146,310
140	Net weight dressed.....	161,049,581	6,470,074	504,722	548,464	101,400
	Power:					
141	Number of establishments reporting.....	616	30	11	3	2
142	Total horsepower.....	152,968	2,074	888	310	22
	Owned—					
	Engines—					
	Steam—					
143	Number.....	1,173	25	16	4	2
144	Horsepower.....	110,973	1,293	885	310	12
	Gas and gasoline—					
145	Number.....	23				
146	Horsepower.....	521				
	Water wheels—					
147	Number.....	6				
148	Horsepower.....	298				
	Water motors—					
149	Number.....	4		1		
150	Horsepower.....	11		3		
	Electric motors—					
151	Number.....	2,083	5			
152	Horsepower.....	37,012	31			
153	Other power, horsepower.....	1,168	300			
	Rented—					
	Electric motors—					
154	Number.....	208	29			1
155	Horsepower.....	2,870	450			10
156	Other kind, horsepower.....	125				
157	Furnished to other establishments, horsepower.....	2,137				

SLAUGHTERING AND MEAT PACKING.

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SUMMARY, BY STATES AND TERRITORIES: 1905—Continued.

Illinois.	Indiana.	Iowa.	Kansas.	Kentucky.	Maryland.	Massachusetts.	Michigan.	
\$317,206,082	\$29,352,593	\$30,074,070	\$96,375,639	\$5,693,731	\$6,702,061	\$37,098,502	\$6,193,280	85
1,376,889,532	93,224,422	41,675,822	509,978,750	7,297,142	4,123,530	40,510,084	12,149,200	86
\$91,996,884	\$6,743,908	\$2,844,547	\$30,531,565	\$475,926	\$278,381	\$2,803,289	\$850,668	87
73,266,797	1,530,000	2,557,027	7,566,980					88
\$6,108,692	\$159,180	\$87,593	\$411,268					89
78,334,416	2,572,500	1,260,572	11,144,304	37,425	160,800	2,294,690	29,429	90
\$4,931,741	\$359,280	\$87,654	\$473,961	\$3,892	\$9,098	\$116,071	\$2,892	91
160,511,123	1,477,056	532,745	30,246,093	455,965	1,316,012	16,915,035	2,350,900	92
\$12,453,289	\$130,866	\$47,005	\$2,167,136	\$34,584	\$117,610	\$1,502,370	\$199,644	93
30,348,138	3,178,656	764,679	9,737,824	500,482	534,372	6,601,707	992,370	94
\$2,135,486	\$292,192	\$62,868	\$647,788	\$41,431	\$57,022	\$585,981	\$83,703	95
260,619,428	27,391,374	41,260,001	81,016,571	4,981,087	17,690,875	82,117,964	9,909,375	96
\$18,754,198	\$1,993,947	\$2,973,294	\$5,782,159	\$419,959	\$1,535,427	\$7,314,614	\$839,370	97
584,019,438	16,192,188	120,323,636	171,957,267	19,290,675	1,847,580	107,572,501	15,252,000	98
\$42,973,175	\$1,307,795	\$7,145,235	\$13,628,093	\$1,596,606	\$160,568	\$8,791,655	\$1,354,205	99
301,720,854	149,394,873	95,101,620	131,997,527	19,799,275	28,828,762	59,518,493	15,025,890	100
\$29,780,849	\$11,924,835	\$8,922,511	\$14,135,135	\$1,902,770	\$2,872,818	\$5,622,780	\$1,649,322	101
99,194,762	15,393,879	9,910,400	24,169,700	4,002,001	8,362,360	17,501,829	3,022,472	102
\$7,753,799	\$1,172,308	\$665,247	\$1,814,777	\$298,181	\$645,566	\$1,435,539	\$219,210	103
56,323,948	811,200	13,599,742	5,343,167	600	16,600	1,000	7,630	104
\$5,346,938	\$62,484	\$894,121	\$200,693	\$42	\$1,328	\$40	\$763	105
\$4,819,452	\$244,750	\$418,575	\$1,742,092		\$28,000			106
408,797,245	35,671,330	58,422,277	125,803,240	6,211,015	8,562,932	81,424,583	8,027,572	107
\$28,181,535	\$2,493,003	\$4,156,638	\$9,109,438	\$478,286	\$649,716	\$6,237,845	\$613,730	108
47,780,170	8,138,420	6,900,196	6,753,857	4,119,256	1,826,640	3,193,230	119,000	109
\$3,281,564	\$615,222	\$535,303	\$452,035	\$289,713	\$135,469	\$156,001	\$10,640	110
9,143,055	266,101	109,133	1,611,428	5,750		167,604		111
\$4,515,283	\$145,915	\$60,023	\$809,945	\$3,019		\$90,825		112
986,981	188,883	236,629	24,051			149,012		113
\$496,239	\$101,722	\$49,089	\$13,731			\$73,613		114
34,537,665	2,198,000		228,622					115
\$1,380,204	\$62,500		\$13,718					116
130,490	9,513	5,686	16,593	195	104		384	117
\$2,397,019	\$172,814	\$120,340	\$419,914	\$3,252	\$1,560		\$6,912	118
61,059	2,361	2,562	6,128	1,545	3,691	3,684	635	119
\$1,344,631	\$20,208	\$48,324	\$118,260	\$22,272	\$98,606	\$88,632	\$2,860	120
12,463,446		537,686	1,973,564					121
\$785,658		\$25,540	\$100,417					122
2,766,594	198,413	94,080	1,063,512	23,890	18,659	154,654	26,455	123
165,007,637	11,428,871	6,562,413	58,858,924	1,137,381	622,976	6,149,456	1,619,500	124
\$16,664,648	\$1,060,279	\$631,001	\$5,828,692	\$91,444	\$54,408	\$577,076	\$131,686	125
3,632,161	31,402	13,070	751,595	12,308	37,074	423,080	44,510	126
\$2,895,359	\$27,844	\$10,829	\$729,496	\$9,696	\$11,034	\$144,222	\$39,056	127
8,653,419		30,572			60,000	1,153,714	800	128
\$2,385,020		\$9,172			\$15,000	\$517,057	\$160	129
\$170,069						\$19,842	\$900	130
\$25,634,241	\$248,840	\$278,661	\$7,184,246	\$21,733	\$27,450	\$987,526	\$187,559	131
\$20,109	\$12,701	\$500	\$1,080	\$925		\$24,524		132
2,808,326,650	187,492,443	92,310,385	1,035,343,904	17,990,657	9,362,554	75,363,143	24,832,050	133
1,553,015,227	98,198,579	46,734,475	560,279,660	9,603,241	5,024,618	40,560,951	12,149,200	134
311,859,161	2,908,331	1,181,753	62,706,867	950,627	2,851,540	37,317,281	4,681,500	135
156,616,837	1,478,206	533,633	31,623,633	455,965	1,316,012	16,915,935	2,350,900	136
1,787,195,118	306,532,050	468,350,343	693,651,164	74,004,153	83,815,028	394,657,071	56,503,856	137
1,332,912,990	244,783,417	357,770,123	525,654,192	57,935,309	65,502,634	310,294,376	42,978,729	138
46,361,659	5,027,091	1,247,974	20,800,117	824,215	947,460	11,391,488	1,775,900	139
30,758,577	3,188,952	766,853	12,452,770	501,338	532,772	6,601,709	1,217,370	140
62	32	17	21	13	26	14	11	141
58,535	4,969	4,895	19,051	977	1,126	3,188	1,054	142
179	69	42	76	21	30	29	16	143
36,884	4,251	4,128	13,663	887	1,110	2,884	879	144
3	3	1				1		145
232	37	16				3		146
								147
								148
								149
								150
1,050	64	57	263	3	1	25	16	151
19,596	671	656	5,318	90	16	168	175	152
855						3		153
65	3	7	5			4		154
968	10	95	70			130		155
								156
						37		157
1,700	8							

TABLE 14.—COMBINED SLAUGHTERING AND MEAT PACKING—DETAILED

	Minnesota.	Missouri.	New Jersey.	New York.	North Carolina.
1 Number of establishments.....	24	33	39	101	3
2 Capital, total.....	\$3,421,533	\$16,425,899	\$2,335,477	\$17,232,855	\$58,389
3 Land.....	\$204,170	\$523,564	\$326,400	\$1,678,237	\$17,000
4 Buildings.....	\$577,965	\$2,591,090	\$596,108	\$2,675,328	\$7,250
5 Machinery, tools, and implements.....	\$549,375	\$1,871,236	\$331,869	\$2,086,534	\$11,139
6 Cash and sundries.....	\$2,090,023	\$11,440,009	\$1,081,100	\$10,792,756	\$23,000
7 Proprietors and firm members.....	28	24	55	123	7
8 Salaried officials, clerks, etc.:—					
9 Total number.....	280	597	96	663	3
10 Total salaries.....	\$252,951	\$623,129	\$108,701	\$821,042	\$3,000
11 Officers of corporations—					
12 Number.....	5	28	12	36	
13 Salaries.....	\$7,800	\$61,045	\$31,944	\$173,066	
14 General superintendents, managers, clerks, etc.—					
15 Total number.....	275	569	84	627	3
16 Total salaries.....	\$245,151	\$562,084	\$76,757	\$647,976	\$3,000
17 Men—					
18 Number.....	251	529	74	511	8
19 Salaries.....	\$231,959	\$536,104	\$72,521	\$588,556	\$3,000
20 Women—					
21 Number.....	24	40	10	116	
22 Salaries.....	\$13,192	\$25,980	\$4,236	\$59,420	
23 Wage-earners, including pieceworkers, and total wages:					
24 Greatest number employed at any one time during the year.....	1,936	5,695	823	3,698	26
25 Least number employed at any one time during the year.....	637	2,889	602	2,729	17
26 Average number.....	1,362	4,218	678	3,500	20
27 Total wages.....	\$780,635	\$2,369,193	\$446,054	\$2,423,455	\$8,160
28 Men 16 years and over—					
29 Average number.....	1,330	4,128	676	3,337	20
30 Wages.....	\$769,392	\$2,351,560	\$445,326	\$2,370,800	\$8,160
31 Women 16 years and over					
32 Average number.....	24	41	2	163	
33 Wages.....	\$8,518	\$8,241	\$728	\$52,685	
34 Children under 16 years—					
35 Average number.....	8	49			
36 Wages.....	\$2,723	\$9,392			
37 Average number of wage-earners, including pieceworkers, employed during each month:					
38 Men 16 years and over—					
39 January.....	1,485	3,658	688	3,421	23
40 February.....	1,384	3,629	670	3,421	23
41 March.....	1,260	4,003	663	3,369	23
42 April.....	1,213	3,734	667	3,267	23
43 May.....	1,253	3,873	669	3,278	23
44 June.....	1,280	4,532	659	3,329	22
45 July.....	937	3,653	642	3,212	17
46 August.....	1,179	3,920	640	3,119	17
47 September.....	1,203	4,526	653	3,340	17
48 October.....	1,380	4,457	666	3,401	17
49 November.....	1,661	4,650	773	3,434	17
50 December.....	1,725	4,901	722	3,453	18
51 Women 16 years and over—					
52 January.....	29	21	2	161	
53 February.....	28	25	2	160	
54 March.....	27	42	2	158	
55 April.....	25	51	2	163	
56 May.....	25	48	2	158	
57 June.....	29	63	2	164	
58 July.....	8	24	2	166	
59 August.....	16	16	2	165	
60 September.....	16	35	2	168	
61 October.....	24	31	2	168	
62 November.....	28	65	2	168	
63 December.....	33	71	2	163	
64 Children under 16 years—					
65 January.....	9	54			
66 February.....	10	53			
67 March.....	7	52			
68 April.....	7	53			
69 May.....	8	52			
70 June.....	12	61			
71 July.....	6	23			
72 August.....	10	41			
73 September.....	9	58			
74 October.....	7	46			
75 November.....	6	44			
76 December.....	5	51			
77 Miscellaneous expenses, total.....	\$407,848	\$1,869,075	\$309,541	\$2,301,389	\$3,936
78 Rent of works.....	\$5,058	\$19,386	\$34,905	\$129,613	
79 Taxes.....	\$14,049	\$18,862	\$19,524	\$87,639	\$260
80 Rent of offices, interest, insurance, and all other sundry expenses not hitherto included.....	\$387,116	\$1,830,827	\$225,433	\$2,044,916	\$3,676
81 Contract work.....	\$1,625				
82 Materials used, total cost.....	\$15,057,875	\$54,042,087	\$29,679	\$39,221	
83 Animals slaughtered—					
84 Beeves—					
85 Number.....	108,829	573,887	38,591	478,716	4,057
86 Cost.....	\$3,094,975	\$22,047,756	\$1,839,384	\$29,799,375	\$117,208
87 Sheep—					
88 Number.....	180,695	564,784	502,642	1,537,637	6,062
89 Cost.....	\$681,304	\$2,224,718	\$2,376,354	\$7,436,390	\$15,667
90 Hogs—					
91 Number.....	1,047,094	2,126,932	1,282,410	1,623,758	1,221
92 Cost.....	\$9,793,606	\$23,253,132	\$8,537,754	\$14,124,703	\$11,450
93 Calves—					
94 Number.....	21,823	52,044	103,389	293,751	1,741
95 Cost.....	\$119,984	\$389,123	\$989,487	\$2,611,331	\$7,665
96 All other animals.....	\$4,122	\$3,500			\$5,000
97 Dressed meat, purchased fresh or partially cured (to be manufactured).....	\$224,665	\$1,355,366	\$1,706,436	\$6,786,824	\$500
98 Fuel.....	\$76,963	\$313,748	\$31,814	\$255,200	\$900
99 Rent of power and heat.....	\$2,222	\$540	\$3,575	\$8,746	
100 Mill supplies.....	\$6,389	\$38,736	\$3,300	\$23,929	\$55
101 All other materials.....	\$1,041,252	\$4,126,650	\$72,908	\$3,301,522	\$6,450
102 Freight.....	\$12,393	\$288,818	\$118,569	\$941,349	

1 Includes establishments distributed as follows: Alabama, 2; Delaware, 6; District of Columbia, 4; Florida, 1; Georgia, 4; Louisiana, 2; Maine, 11; Montana, 2; Nebraska, 8; Nevada, 1; Tennessee, 9; Texas, 10; Virginia, 15; Washington, 14; West Virginia, 7; Wisconsin, 16; Wyoming, 1.

SLAUGHTERING AND MEAT PACKING.

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SUMMARY, BY STATES AND TERRITORIES: 1905—Continued.

Ohio.	Oklahoma.	Oregon.	Pennsylvania.	Rhode Island.	Utah.	Vermont.	All other states. ¹	
88	3	10	156	6	3	3	113	1
\$6,357,135	\$121,750	\$974,727	\$8,061,250	\$523,142	\$147,664	\$29,400	\$38,002,988	2
\$794,672	\$10,000	\$191,817	\$641,478	\$25,800	\$10,000	\$7,500	\$2,880,132	3
\$1,279,143	\$63,300	\$168,198	\$1,721,817	\$60,940	\$8,200	\$9,500	\$7,176,054	4
\$909,699	\$28,150	\$176,429	\$1,021,341	\$44,596	\$9,800	\$2,300	\$5,660,752	5
\$3,373,621	\$20,300	\$438,283	\$4,676,614	\$391,806	\$119,664	\$10,100	\$22,286,050	6
98	2	7	177	7	1	3	89	7
316	1	60	337	11	9	1	1,567	8
\$293,534	\$3,500	\$72,914	\$361,896	\$11,280	\$10,260	\$1,800	\$1,697,192	9
42		16	29	2	3	1	75	10
\$83,070		\$28,425	\$68,640	\$2,000	\$5,040	\$1,800	\$207,365	11
274	1	44	308	9	6		1,492	12
\$210,464	\$3,500	\$44,489	\$293,256	\$8,680	\$5,220		\$1,489,827	13
245	1	40	278	9	2		1,382	14
\$196,120	\$3,500	\$42,313	\$279,830	\$8,680	\$3,300		\$1,412,548	15
29		4	30		4		110	16
\$14,344		\$2,176	\$13,426		\$1,920		\$77,279	17
2,473	61	322	2,587	154	32	15	13,090	18
2,078	25	253	2,238	148	29	8	7,357	19
2,237	37	246	2,413	151	31	11	10,484	20
\$1,309,021	\$21,660	\$155,498	\$1,469,716	\$82,058	\$20,950	\$5,115	\$5,610,926	21
2,199	33	244	2,380	151	31	10	9,876	22
\$1,298,052	\$20,680	\$154,678	\$1,459,255	\$82,058	\$20,950	\$4,751	\$5,377,045	23
35	3	1	26			1	333	24
\$10,099	\$780	\$520	\$8,908			\$364	\$151,579	25
3	1	1	7				275	26
\$570	\$200	\$300	\$1,553				\$82,302	27
2,262	26	238	2,375	152	31	9	10,404	28
2,210	29	223	2,343	152	31	9	9,735	29
2,146	24	230	2,313	150	31	8	9,892	30
2,114	31	228	2,316	148	31	8	9,826	31
2,120	34	229	2,329	150	31	9	9,964	32
2,122	38	227	2,304	152	31	9	10,234	33
2,150	41	229	2,308	152	31	9	8,441	34
2,168	49	228	2,329	150	31	10	8,440	35
2,180	41	244	2,391	149	31	11	9,396	36
2,274	35	278	2,485	151	31	12	10,152	37
2,290	30	282	2,518	153	31	13	10,900	38
2,342	28	292	2,549	153	31	13	11,088	39
35	22	1	26			1	328	40
36	22	1	27			1	252	41
36	22	1	28			1	289	42
39	22	1	26			1	319	43
33	22	1	27			1	327	44
33	22	1	26			1	310	45
32	22	1	24			1	162	46
33	22	1	24			1	224	47
33	22	1	25			1	358	48
36	4	1	26			1	446	49
37	7	1	26			1	484	50
37	7	1	27			1	497	51
4		1	7				258	52
2		1	7				231	53
3		1	7				225	54
3		1	6				244	55
2		1	6				280	56
3		1	6				299	57
3		1	7				254	58
3		1	7				254	59
1		1	7				360	60
1	2	1	7				311	61
3	4	1	8				299	62
4	1	1	8				305	63
7	1	1	8				\$3,886,101	64
\$648,940	\$10,909	\$126,178	\$920,321	\$34,022	\$16,595	\$1,815	\$52,943	65
\$17,577	\$36	\$5,400	\$110,886	\$1,900	\$3,245		\$133,325	66
\$33,480	\$454	\$6,181	\$29,050	\$1,209	\$342	\$210	\$3,697,863	67
\$597,743	\$10,419	\$108,397	\$772,170	\$30,913	\$13,008	\$1,605	\$1,970	68
\$140		\$6,200	\$8,215				\$105,610,810	69
\$25,022,324	\$236,954	\$2,389,902	\$27,784,202	\$2,290,310	\$513,543	\$57,661	1,169,773	70
189,613	3,274	25,462	197,581		12,660	720	\$39,904,891	71
\$6,490,507	\$76,170	\$902,812	\$10,068,306		\$312,164	\$23,000	1,413,221	72
148,418	365	82,870	363,494		26,371	\$25,300	\$5,254,036	73
\$502,029	\$892	\$233,373	\$1,570,071		\$88,692		4,232,262	74
1,447,778	14,505	60,931	1,085,634	89,548	3,740	2,180	\$46,551,386	75
\$14,954,587	\$144,226	\$711,755	\$10,156,069	\$1,438,173	\$33,024	\$25,960	285,231	76
86,906	735	2,831	112,867		3,330	560	\$2,290,516	77
\$665,385	\$3,016	\$17,565	\$1,025,377		\$27,130	\$4,320	\$2,950	78
\$25,000				\$806,189	\$42,600		\$3,080,758	79
\$1,497,516	\$8,250	\$359,504	\$3,363,793	\$4,801	\$4,320	\$500	\$390,683	80
\$119,998	\$2,650	\$21,402	\$145,137	\$2,236	\$4,160		\$8,628	81
\$1,576		\$240	\$1,813	\$641	\$803	\$60	\$133,361	82
\$24,140	\$250	\$2,636	\$23,314	\$37,950		\$471	\$7,385,460	83
\$715,697	\$1,500	\$54,913	\$1,237,264	\$320		\$50	\$108,141	84
\$25,889		\$85,702	\$193,053					

TABLE 14.—COMBINED SLAUGHTERING AND MEAT PACKING—DETAILED

		Minnesota.	Missouri.	New Jersey.	New York.	North Carolina.
85	Products, total value.....	\$17,526,707	\$60,031,133	\$17,238,076	\$73,218,198	\$192,223
	Beef—					
86	Sold fresh (exclusive of purchased dressed fresh beef)—					
87	Pounds.....	55,358,469	315,665,100	21,653,910	310,605,538	1,724,036
88	Value.....	\$2,850,777	\$19,171,944	\$1,837,742	\$26,119,579	\$115,694
89	Canned—					
90	Pounds.....		1,985,936		2,460,000	
91	Value.....		\$54,282		\$447,903	
92	Salted and cured—					
93	Pounds.....	826,980	904,663	293,925	15,145,733	
94	Value.....	\$42,817	\$55,576	\$32,973	\$759,210	
95	Mutton, sold fresh (exclusive of purchased dressed fresh mutton)—					
96	Pounds.....	8,283,313	23,555,759	21,468,265	63,435,207	252,838
97	Value.....	\$526,449	\$1,834,529	\$1,938,163	\$5,991,233	\$16,950
98	Veal, sold fresh (exclusive of purchased dressed fresh veal)—					
99	Pounds.....	2,120,934	5,421,809	10,092,263	26,400,486	85,090
100	Value.....	\$132,450	\$386,860	\$1,059,149	\$2,605,948	\$6,385
101	Pork—					
102	Sold fresh (exclusive of purchased dressed fresh pork)—					
103	Pounds.....	43,542,306	118,797,174	121,630,717	123,177,559	127,225
104	Value.....	\$3,204,733	\$8,444,749	\$8,166,454	\$9,130,670	\$10,286
105	Salted—					
106	Pounds.....	52,555,395	131,795,452	6,440,860	28,146,502	
107	Value.....	\$4,240,053	\$9,624,998	\$545,936	\$2,633,425	
108	Hams, smoked bacon, sides, and shoulders—					
109	Pounds.....	19,186,367	63,962,310	12,884,743	78,349,412	
110	Value.....	\$1,919,167	\$5,887,371	\$1,271,008	\$8,079,191	
111	Sausage, fresh and cured—					
112	Pounds.....	8,151,961	19,272,945	3,586,223	12,481,377	
113	Value.....	\$696,695	\$1,304,473	\$371,815	\$1,028,106	
114	All other meat sold fresh (exclusive of purchased dressed fresh meat)—					
115	Pounds.....	794,420	2,630,218	1,365,846	2,828,915	
116	Value.....	\$72,200	\$120,690	\$97,088	\$237,168	
117	Canned goods, value.....		\$9,836		\$280,270	
118	Refined lard—					
119	Pounds.....	26,325,556	28,878,170	2,927,178	27,840,103	
120	Value.....	\$1,925,587	\$2,018,428	\$155,735	\$1,927,559	
121	Neutral lard—					
122	Pounds.....	110,000	4,337,120	2,496,471	7,258,608	
123	Value.....	\$8,000	\$295,158	\$174,857	\$486,196	
124	Oleomargarine oil—					
125	Gallons.....	283,912	1,829,250		3,578,246	
126	Value.....	\$142,517	\$1,021,529		\$2,035,419	
127	Other oils—					
128	Gallons.....	1,150	235,269	5,000	1,304,750	
129	Value.....	\$575	\$96,655	\$700	\$812,413	
130	Soap—					
131	Pounds.....	147,200				
132	Value.....	\$4,256				
133	Fertilizers—					
134	Tons.....	7,010	8,253	100	7,332	60
135	Value.....	\$150,979	\$207,171	\$1,400	\$164,964	\$1,200
136	Fertilizer materials (bones, offal, tankage, etc.)—					
137	Tons.....	533	33,996	5,249	3,408	75
138	Value.....	\$3,888	\$409,909	\$51,428	\$68,598	\$1,500
139	Glue—					
140	Pounds.....					
141	Value.....					
142	Hides—					
143	Number.....	125,784	612,670	85,064	607,034	4,758
144	Pounds.....	6,587,904	37,971,556	3,230,549	36,892,215	181,690
145	Value.....	\$654,461	\$3,349,715	\$301,230	\$3,748,693	\$11,567
146	Sheep pelts—					
147	Number.....	188,791	580,261	502,642	2,069,553	6,062
148	Value.....	\$187,802	\$547,801	\$567,247	\$1,101,878	\$2,231
149	Wool—					
150	Pounds.....			154,748	5,187,937	
151	Value.....			\$42,811	\$1,997,334	
152	Fine chemicals (pancreatin, pepsin, etc.).....					
153	All other products.....	\$761,582	\$5,187,434	\$610,090	\$3,557,311	\$25,960
154	Amount received for custom or contract work.....	\$1,719	\$2,025	\$12,250	\$5,130	\$450
155	Weight of animals slaughtered (pounds):					
156	Beeves—					
157	Gross weight on the hoof.....	111,047,546	593,049,472	43,313,950	573,815,462	3,408,050
158	Net weight dressed.....	56,163,359	324,827,195	22,826,582	317,495,778	1,724,036
159	Sheep—					
160	Gross weight on the hoof.....	17,364,584	47,551,642	40,633,220	121,468,439	505,676
161	Net weight dressed.....	8,429,203	23,731,886	21,468,265	63,450,207	252,838
162	Hogs—					
163	Gross weight on the hoof.....	207,961,058	473,519,060	177,574,113	265,504,530	177,300
164	Net weight dressed.....	162,839,029	373,850,330	140,727,525	209,327,564	127,225
165	Calves—					
166	Gross weight on the hoof.....	3,332,305	9,303,502	15,619,970	40,814,290	158,950
167	Net weight dressed.....	2,183,103	5,839,916	10,180,539	26,538,366	85,090
168	Power:					
169	Number of establishments reporting.....	15	27	23	59	3
170	Total horsepower.....	1,643	9,631	881	7,600	98
171	Owned—					
172	Engines—					
173	Steam—					
174	Number.....	23	71	23	93	2
175	Horsepower.....	1,498	7,547	677	6,304	45
176	Gas and gasoline—					
177	Number.....		3	1		
178	Horsepower.....		17	5		
179	Water wheels—					
180	Number.....		1			2
181	Horsepower.....		60			53
182	Water motors—					
183	Number.....					
184	Horsepower.....					
185	Electric motors—					
186	Number.....	3	121	5	56	
187	Horsepower.....	10	1,999	127	860	
188	Other power, horsepower.....					
189	Rented—					
190	Electric motors—					
191	Number.....	11	2	3	36	
192	Horsepower.....	135	8	47	436	
193	Other kind, horsepower.....			25		
194	Furnished to other establishments, horsepower.....	7			145	

SLAUGHTERING AND MEAT PACKING.

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SUMMARY. BY STATES AND TERRITORIES: 1905—(Continued.)

Ohio.	Oklahoma.	Oregon.	Pennsylvania.	Rhode Island.	Utah.	Vermont.	All other states.	
\$28,725,044	\$287,866	\$2,907,154	\$32,321,089	\$2,499,440	\$653,314	\$74,454	\$121,287,422	85
89,925,370	1,480,200	13,525,565	117,319,123		6,382,120	412,000	571,048,575	86
\$5,967,126	\$75,523	\$882,814	\$9,436,666		\$373,514	\$25,530	\$33,421,388	87
986,720							7,999,972	88
\$98,672							\$311,855	89
2,434,645	167,000	425,000	924,173		25,400		17,523,115	90
\$175,972	\$9,202	\$21,500	\$88,294		\$1,420		\$764,447	91
5,406,034	14,890	3,785,414	15,035,808		1,414,405	37,432	61,894,251	92
\$472,931	\$1,162	\$223,207	\$1,440,490		\$87,780	\$3,843	\$4,232,083	93
6,680,682	60,714	293,980	9,097,823		301,000	46,600	33,336,516	94
\$610,883	\$3,710	\$19,822	\$987,297		\$27,440	\$3,801	\$2,552,594	95
49,033,932	578,600	2,148,669	37,333,942	3,724,440	303,075	218,900	165,759,656	96
\$4,514,599	\$39,904	\$185,057	\$3,295,575	\$353,079	\$21,596	\$17,003	\$12,024,040	97
38,230,873	864,000	1,613,701	11,175,853	6,522,947	56,500	32,500	224,960,948	98
\$3,015,005	\$60,480	\$133,741	\$931,356	\$497,013	\$5,020	\$2,600	\$16,325,392	99
78,202,528	739,200	7,633,646	66,894,209	8,439,327	153,500	52,000	190,917,723	100
\$7,167,719	\$59,784	\$764,864	\$6,747,993	\$873,134	\$17,040	\$6,240	\$18,855,227	101
17,402,744	104,000	1,041,720	23,007,722	2,581,420	302,600	26,000	47,328,847	102
\$1,285,789	\$8,000	\$79,150	\$2,025,240	\$211,946	\$23,742	\$2,600	\$3,181,889	103
4,155,474			13,498,980	1,900,000	7,000	32,500	20,518,441	104
\$241,956			\$939,079	\$186,000	\$845	\$985	\$1,150,898	105
\$45,556		\$9,863					\$767,253	106
43,318,526	195,080	2,449,740	27,670,477	5,077,400	65,200	26,000	136,627,377	107
\$3,022,312	\$13,557	\$220,023	\$2,033,961	\$363,218	\$5,964	\$2,340	\$9,587,217	108
5,862,140			6,458,996	20,800	6,000		14,507,830	109
\$405,378			\$500,657	\$1,560	\$480		\$1,008,042	110
130,250			294,628				2,035,442	111
\$73,440			\$147,314				\$1,087,682	112
107,500		2,248	705,631				935,570	113
\$48,645		\$1,124	\$321,699				\$573,439	114
							12,727,369	115
							\$354,476	116
945		455	3,759				17,508	117
\$16,901		\$9,000	\$71,260				\$591,646	118
6,572			4,656	922			18,842	119
\$87,191			\$69,382	\$11,536			\$329,967	120
218,400		129,386					2,203,617	121
\$14,500		\$9,700					\$151,879	122
254,572	3,906	26,493	296,259		12,790	1,480	1,355,340	123
11,638,587	172,240	1,533,083	14,619,934		604,000	51,600	74,778,128	124
\$1,037,295	\$14,133	\$131,603	\$1,469,705		\$61,447	\$4,164	\$6,753,831	125
148,118	365	13,267	363,494		26,371	825	1,416,571	126
\$101,427	\$210	\$9,996	\$336,037		\$22,218	\$803	\$1,407,021	127
		764,462	7,140			400	168,771	128
		\$150,000	\$1,285			\$120	\$58,462	129
			\$200				\$16,991	130
\$313,967	\$2,176	\$55,090	\$1,473,368	\$1,954	\$4,808	\$4,025	\$5,698,079	131
\$111,780	\$25		\$4,131			\$400	\$81,624	132
181,281,521	2,845,400	26,676,430	222,209,735		13,029,600	736,000	1,162,361,260	133
94,937,825	1,480,200	14,158,427	120,379,711		6,390,120	412,000	622,619,659	134
11,046,121	27,935	8,205,846	30,315,321		2,849,810	67,625	126,161,903	135
5,413,234	14,890	3,785,452	15,128,819		1,414,405	37,432	61,034,041	136
291,857,523	3,022,410	13,219,813	193,349,941	23,457,480	736,300	455,000	945,606,301	137
228,427,393	2,426,570	10,314,994	153,204,323	18,487,340	584,200	361,900	714,968,372	138
11,611,732	101,190	472,120	15,394,449		475,075	85,600	62,642,051	139
6,795,882	60,714	293,980	9,126,309		301,000	46,600	35,953,081	140
1	1	9	76	6	2	3	86	141
4,368	80	372	7,546	242	25	70	23,323	142
117	1	12	137	6	1	2	176	143
4,111	50	324	6,761	138	10	10	16,312	144
1			5				5	145
4			50				127	146
						1	2	147
						60	125	148
		1					2	149
		3					5	150
14	6	3	49				342	151
196	30	45	555				6,469	152
								153
9			3	15	1		14	154
57			150	104	15		185	155
							100	156
			55				185	157

MANUFACTURED ICE

MANUFACTURED ICE.

By HUGH B. MELOY.

Not many years ago ice was a great luxury to persons living south of the natural ice zone, and even to a large proportion of those living in northern cities, but it may now be regarded as an absolute necessity both for industrial enterprises and for domestic use.

The statistics concerning the manufacture of ice are of considerable interest, especially as the industry has passed beyond the experimental stage and is now firmly established. As presented in this report the statistics relate to establishments engaged exclusively in the manufacture of ice for sale.

In many instances cold storage systems were oper-

ated in connection with ice plants, and in such cases their receipts have been included in the totals for "all other products." No statistics are shown for ice manufactured in breweries, in meat, provision, and cold storage warehouses, and in other plants that produce it for their own use and not for sale. The production made for sale by such establishments comprises the partial products of establishments engaged primarily in the manufacture of other products.

Table 1 presents in summarized form the totals for the industry as returned at each census from 1870 to 1905, with the percentages of increase for each period.

TABLE 1.—COMPARATIVE SUMMARY, WITH PER CENT OF INCREASE: 1870 TO 1905.

	CENSUS.					PER CENT OF INCREASE.			
	1905 ¹	1900 ²	1890	1880	1870	1900 to 1905	1890 to 1900	1880 to 1890	1870 to 1880
Number of establishments.....	1,320	787	222	35	4	67.7	254.5	534.3	775.0
Capital.....	\$66,592,001	\$38,204,054	\$9,846,468	\$1,251,200	\$434,000	74.3	288.0	687.0	188.3
Salaried officials, clerks, etc.....	2,332	1,545	439	(4)	(4)	50.9	251.9	.....	.....
Salaries.....	\$2,001,111	\$1,234,803	\$345,191	(4)	(4)	62.1	257.7	.....	.....
Wage-earners, average number.....	10,101	6,933	2,826	447	97	45.7	145.3	532.2	390.8
Total wages.....	\$5,549,162	\$3,424,305	\$1,095,996	\$140,885	\$40,600	62.1	212.4	677.9	247.0
Men 16 years and over.....	10,029	6,889	2,811	389	96	45.6	145.1	622.6	305.2
Wages.....	\$5,538,163	\$3,416,844	\$1,094,634	(4)	(4)	62.1	212.1	.....	.....
Women 16 years and over.....	18	8	.....	50	.....	125.0	.....	.....	.....
Wages.....	\$3,978	\$3,592	.....	(4)	.....	10.7	.....	.....	.....
Children under 16 years.....	54	36	15	8	1	50.0	140.0	87.5	700.0
Wages.....	\$7,021	\$3,869	\$1,362	(4)	(4)	81.5	134.1	.....	.....
Miscellaneous expenses.....	\$4,014,861	\$1,779,890	\$477,485	(6)	(6)	125.6	272.8	.....	.....
Cost of materials used.....	\$6,011,325	\$3,339,724	\$940,699	\$158,112	\$82,165	80.0	255.0	495.0	92.4
Value of products.....	\$23,790,045	\$13,874,513	\$4,900,983	\$544,763	\$258,250	71.5	183.1	799.7	110.9

¹Exclusive of the statistics of 163 establishments engaged primarily in the manufacture of other products. These establishments made ice to the value of \$1,899,912.

²The figures reported for 1900 include the statistics for 12 establishments, the schedules for which were received too late to be included in the totals for this industry as presented in the general report on Manufactures, Parts I and II.

³Includes proprietors and firm members, with their salaries; number only reported in 1900 and 1905, but not included in this table.

⁴Not reported separately.

⁵Not reported.

The growth of the industry since the census of 1870 has been marvelous, the number of ice producing plants having increased from 4 in that year to 1,320 at the census of 1905. The increase in the number of plants at the census of 1905 compared with that of 1900 is very marked, particularly as it does not include the large number of ice making and refrigerating plants installed in the breweries and cold storage warehouses. Between 1870 and 1905 the invested capital increased from \$434,000 to \$66,592,001; the

value of products, from \$258,250 to \$23,790,045; and the number of employees, from 97 to 12,433.

In 1870 ice was worth from \$20 to \$30 per ton, while for 1905 the average value was \$3.12 for the same unit.

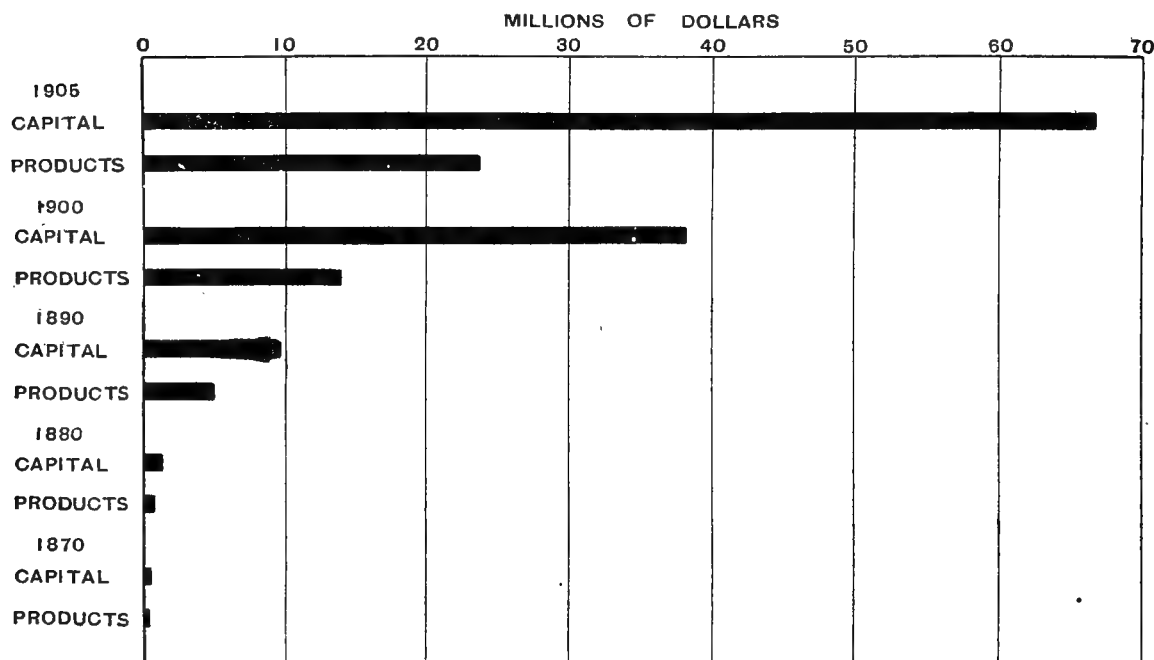
A few years ago artificially produced ice was soft and very perishable, but that made according to the improved methods in use at present is as hard and lasting as any that can be obtained from natural sources. The cost of the production of ice during the experimental stage of the industry was much in excess of that of the

matured and perfected product of the present day. This high cost was due principally to inferior machinery, which caused a loss by the leakage of gas and by an abnormal consumption of fuel. These objectionable features have been overcome by the introduction of perfected compressors and condensation and expan-

sion coils, and the employment of competent engineers, with the result that the present condition of inexpensive production has been made possible.

The great advancement of the ice industry in the United States is perhaps more graphically indicated in the following diagram:

DIAGRAM 1.—COMPARATIVE GROWTH OF CAPITAL AND PRODUCTS: 1870 TO 1905.



Number of establishments.—Table 2 shows, for 1900 and 1905, the total number of establishments manufacturing ice and the number of compressor and absorption systems in use in each state and territory engaged in the industry.

TABLE 2.—Number of establishments, by systems, by geographic divisions, and by states and territories: 1905 and 1900.

STATE OR TERRITORY.	NUMBER OF ESTABLISHMENTS.		NUMBER OF SYSTEMS.			
			Compressor.		Absorption.	
	1905	1900	1905	1900	1905	1900
United States.....	1,320	787	1,100	571	232	216
North Atlantic division.....	217	147	200	136	18	11
Massachusetts.....	1	2	1	1		
Rhode Island.....	3	2	3	2		
Connecticut.....	7	5	6	5	1	
New York.....	58	41	53	37	5	4
New Jersey.....	39	26	35	24	4	2
Pennsylvania.....	109	73	102	68	8	5
South Atlantic division.....	266	170	197	111	70	59
Delaware.....	10	7	10	7		
Maryland.....	27	18	26	18		
District of Columbia.....	6	4	6	4		
Virginia.....	148	30	42	22	7	8
West Virginia.....	30	8	28	4	3	4
North Carolina.....	32	23	27	19	5	4
South Carolina.....	18	13	12	7	6	0
Georgia.....	31	32	28	16	20	16
Florida.....	47	35	18	14	29	21

¹ One establishment used both the compressor and absorption systems.

² One establishment used the vacuum system.

TABLE 2.—Number of establishments, by systems, by geographic divisions, and by states and territories: 1905 and 1900—Continued.

STATE OR TERRITORY.	NUMBER OF ESTABLISHMENTS.		NUMBER OF SYSTEMS.			
			Compressor.		Absorption.	
	1905	1900	1905	1900	1905	1900
North Central division.....	281	172	224	116	60	56
Ohio.....	169	42	55	30	15	12
Indiana.....	166	47	38	25	29	22
Illinois.....	143	29	35	20	9	9
Wisconsin.....	1		1			
Iowa.....	4	3	3	2	1	1
Missouri.....	53	31	52	28	1	3
Nebraska.....	1	1	1	1		
Kansas.....	44	19	39	10	5	9
South Central division.....	430	245	365	165	70	80
Kentucky.....	48	31	25	12	26	19
Tennessee.....	37	27	31	22	6	5
Alabama.....	39	23	25	14	14	9
Mississippi.....	137	23	30	13	8	10
Louisiana.....	162	36	54	13	9	23
Arkansas.....	38	18	38	18		
Indian Territory.....	22	3	21	3	1	
Oklahoma.....	22	7	21	5	1	2
Texas.....	125	77	120	65	5	12
Western division.....	126	53	114	43	14	10
Idaho.....	1		1			
Colorado.....	16	6	12	2	4	4
New Mexico.....	7	4	5	2	2	2
Arizona.....	13	9	13	9		
Utah.....	1	1	1	1		
Nevada.....	2		2			
Washington.....	12	4	9	4	3	
Oregon.....	20	9	20	9		
California.....	54	20	51	16	5	4

³ Three establishments used both the compressor and absorption systems.

⁴ Two establishments used both the compressor and absorption systems.

At the census of 1900 the number of states for which ice producing plants were reported was 37, while at the census of 1905 the number was 41, the 4 additional states being Massachusetts, Wisconsin, Idaho, and Nevada. In proportion to the population the Southern states had a much larger number of ice manufacturing plants than the Northern and Western states.

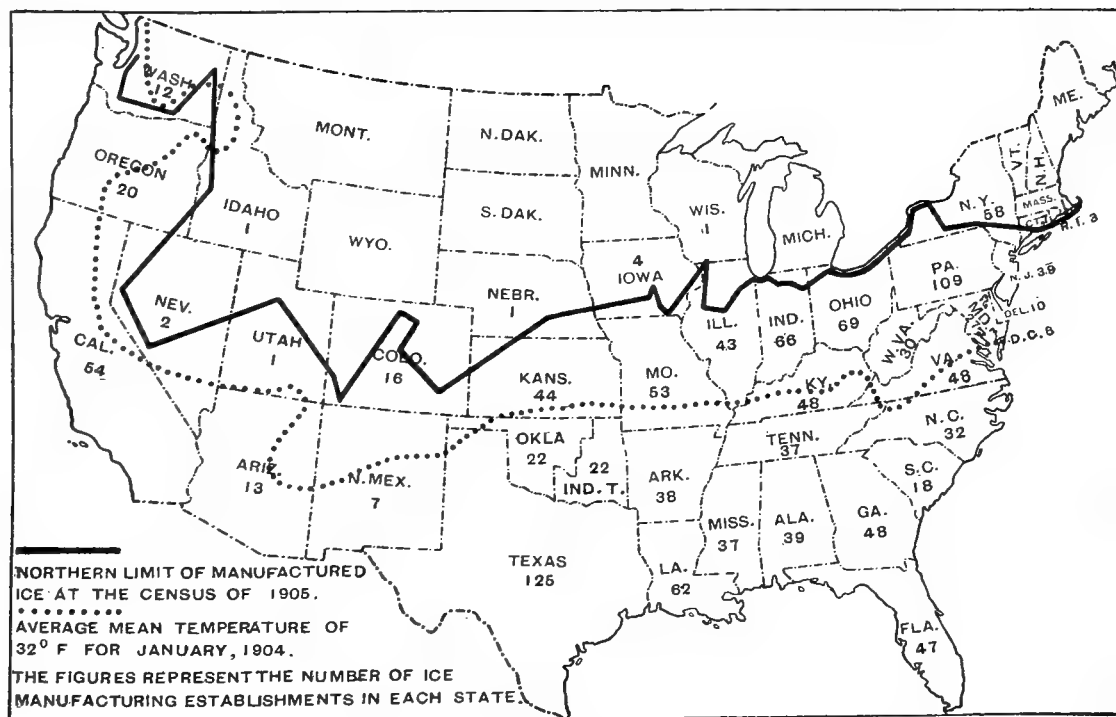
The states for which no ice plants were reported are as follows: Maine, New Hampshire, Vermont, Michigan, Minnesota, North Dakota, South Dakota, Montana, and Wyoming, all of which are located in a section especially adapted to the production of natural ice. There are, however, a large number of cold storage warehouses in these states.

Of the two fundamental systems used in the manufacture of ice, the compressor system predominated at the two censuses. According to the reports for 1905, 1,100 establishments used the compressor system and only 232 the absorption system. The excess of the number of systems over the number of establishments reporting is the result of the fact that 12 establishments used both the compressor and the absorption systems and 1 used the vacuum system.

Although the outlay of capital required for installation is much greater for the compressor system of manufacture than for the absorption system, the former system is apparently superseding the latter throughout the country with the exception of certain parts of the South, where the opinion seems to prevail that the heavy compressors and the other requisite machinery do not work to advantage, because of the extreme heat produced, consequently, in those sections the absorption system, requiring less machinery and a smaller amount of labor, predominates. Florida and Kentucky are the only states in which the number of establishments using the absorption system was greater than the number using the compressor system.

Map 1 shows the northern limit of manufactured ice, as indicated by the reports received at the census of 1905. The approximate southern limit of natural ice is defined by a line indicating an average mean temperature of 32° F. for January, 1904, according to the reports of the observers of the United States Weather Bureau, and a middle zone lying between these lines may be termed the competitive area, since in it both the natural and the artificial ice are produced.

MAP 1.—ZONES OF NATURAL AND MANUFACTURED ICE: 1905.



No reports of the manufacture of ice were received at the census of 1905 from any part of the territory north of the line shown on the map as the "northern limit of manufactured ice." This indicates apparently that in that northern territory the crop of natural ice is plentiful and can be harvested and sold at a price lower than the cost of the artificial product. The zone below the line that marks an average mean tempera-

ture of 32° F. for January, 1904, is made up of territory in which the manufactured article is used almost exclusively, because of the expense of procuring natural ice. Although manufactured ice has a practical monopoly in this territory, a considerable supply of natural ice from the North is still received at some of the larger cities, especially those along the seacoast.

Capital.—Table 3 shows the absolute and per cent distribution of capital for 1900 and 1905, and the per cent of increase.

TABLE 3.—*Capital, with per cent each item forms of total, and per cent of increase: 1905 and 1900.*

	CENSUS.				Per cent of increase.
	1905		1900		
	Amount.	Per cent of total.	Amount.	Per cent of total.	
Total.....	\$66,592,001	100.0	\$38,204,054	100.0	74.3
Land.....	8,855,242	13.3	4,679,379	12.3	89.2
Buildings.....	15,429,399	23.2	7,387,014	19.3	108.9
Machinery, tools, and implements.....	36,451,321	54.7	22,852,158	59.8	59.5
Cash and sundries...	5,856,039	8.8	3,285,503	8.6	78.2

As shown by Table 3, machinery, tools, and implements was the principal item according to value at both censuses. At the census of 1905 as compared with that of 1900, the capital invested in compressors, engines, pumps, boilers, condensers, and all other requisite apparatus and equipment increased \$13,599,163, or 59.5 per cent; the value of the buildings, the next largest item, increased \$8,042,385, or 108.9 per cent; and the value of the land, \$4,175,863, or 89.2 per cent; while cash on hand, bills receivable, unsettled ledger accounts, raw materials, stock in process of manufacture, finished products on hand, and other sundries, increased in value \$2,570,536, or 78.2 per cent.

Materials used.—Table 4 is a detailed statement of the cost of the different materials used in the manufacture of ice, with the percentages that the cost of the various items forms of the total at the census of 1905.

TABLE 4.—*Materials used, by kind and cost, with per cent of total: 1905.*

KIND.	Cost.	Per cent of total.
Total.....	\$6,011,325	100.0
Ammonia.....	613,138	10.2
Fuel.....	4,365,316	72.6
Rent of power and heat.....	77,577	1.3
Mill supplies.....	328,794	5.5
Freight.....	81,175	1.3
All other materials.....	545,325	9.1

It is evident from the figures in Table 4 that the cost of the refrigerant employed is very low when compared with that of the fuel used, which is the largest item of expense. The quantity of ammonia used, for which a cost of \$613,138 was reported, was returned as 3,428,431 pounds. The mill supplies include oil, waste, belting, packing, and all supplies consumed in the operation of the machinery, and the item "all other materials" includes salt, chloride of calcium, cases, cartons, etc.

Anhydrous ammonia is reported as having cost \$522,275, or 85.2 per cent of the total amount expended

for all the ammonia used, the cost of the aqua ammonia being only \$90,863. The difference in the cost of the two kinds of ammonia results from the fact that in the compressor systems, which constitute more than four-fifths of all the systems, anhydrous or dry ammonia is used almost exclusively, while in the refrigeration process of the absorption system aqua ammonia is used chiefly.

Products.—Table 5 shows the production of ice, by tons, for the states and territories, arranged according to the number of establishments at the census of 1905.

TABLE 5.—*Number of establishments and tons of ice manufactured, by states and territories: 1905.*

STATE OR TERRITORY.	Number of establishments.	Quantity of ice manufactured (tons).
United States.....	1,320	7,199,448
Texas.....	125	426,755
Pennsylvania.....	109	988,853
Ohio.....	69	499,922
Indiana.....	66	285,511
Louisiana.....	62	300,334
New York.....	58	847,935
California.....	54	319,423
Missouri.....	53	411,818
Georgia.....	48	222,555
Kentucky.....	48	233,424
Virginia.....	48	166,909
Florida.....	47	169,051
Kansas.....	44	166,718
Illinois.....	43	260,542
Alabama.....	39	129,620
New Jersey.....	39	238,172
Arkansas.....	38	138,015
Mississippi.....	37	136,368
Tennessee.....	37	177,824
North Carolina.....	32	110,414
West Virginia.....	30	96,888
Maryland.....	27	228,541
Indian Territory.....	22	45,476
Oklahoma.....	22	51,181
Oregon.....	20	39,738
South Carolina.....	18	75,803
Colorado.....	16	113,049
Arizona.....	13	27,580
Washington.....	12	51,872
Delaware.....	10	38,692
Connecticut.....	7	35,175
New Mexico.....	7	16,337
District of Columbia.....	6	84,524
Iowa.....	4	26,872
Rhode Island.....	3	9,331
All other states ¹	7	28,526

¹ Includes establishments distributed as follows: Idaho, 1; Massachusetts, 1; Nebraska, 1; Nevada, 2; Utah, 1; Wisconsin, 1.

The leading states according to the number of establishments were Texas, Pennsylvania, Ohio, Indiana, Louisiana, New York, California, and Missouri. According to the quantity of ice produced, however, the rank of the states differs considerably, the 10 leading ones being Pennsylvania, New York, Ohio, Texas, Missouri, California, Louisiana, Indiana, Illinois, and New Jersey.

Table 6 is a comparative statement for 1900 and 1905 of the quantity and value of the different kinds of ice produced, with the corresponding percentages of increase.

The quantity of can ice manufactured increased 2,556,025 tons, or 61.7 per cent, and the value \$8,157,387, or 63.4 per cent; while the plate ice increased 348,984 tons, or 225.6 per cent, in the quantity produced, and \$989,242, or 224.5 per cent, in the value.

TABLE 6.—Ice manufactured, by kind, quantity, and value, with per cent of increase: 1905 and 1900.

KIND.	1905	1900	Per cent of increase.
Total tons.....	7,199,448	4,294,439	67.6
Total value.....	\$22,450,503	\$13,303,874	68.8
Can ice:			
Tons.....	6,695,789	4,139,764	61.7
Value.....	\$21,020,547	\$12,863,160	63.4
Plate ice:			
Tons.....	503,659	154,675	225.6
Value.....	\$1,429,956	\$440,714	224.5

The can ice process of manufacturing is used to a much greater extent than the plate process. This may be attributed to the fact that formerly the fundamental principles governing the elimination of foreign substances without distillation were not understood. During distillation all foreign objects, such as mud and germs, are removed from the water, and, by the application of the proper temperature, clear ice is produced. With the plate system no distillation is required, only a continual circulation of the water to be frozen being necessary. The objects in solution collect slowly in

the center of the tank, and since the water is never frozen there they are drawn off when the ice gets thick enough to pull. It is said that all the objectionable phases have been overcome in the perfected plate system, and that a pure crystal ice is produced at the minimum average cost of 50 cents per ton.¹

During the last intercensal period the development of both the can and the plate ice making systems was rapid, the increase in either case being noteworthy.

The ice sold by establishments engaged primarily in the manufacture of other products is an important factor and has to be considered in determining the total production manufactured for sale. The chief establishments producing ice as a by-product or partial product are breweries and slaughtering and meat packing establishments.

Table 7 shows the partial products of such establishments together with the production of the ice industry proper, the total production, and the number of establishments reporting manufactured ice as a partial product and a chief product, by states, for 1905.

¹ "Ice and Refrigeration," June, 1905.

TABLE 7.—TOTAL ICE PRODUCTION, ICE INDUSTRY AND PARTIAL PRODUCTS OF OTHER INDUSTRIES, BY STATES: 1905.

STATE.	NUMBER OF ESTABLISHMENTS.			ICE.									
	Total.	Ice industry.	Partial products.	Aggregate.		Ice industry.		Partial products.					
				Tons.	Value.	Tons.	Value.	Total.		Can.		Plate.	
								Tons.	Value.	Tons.	Value.	Tons.	Value.
United States.....	1,483	1,320	163	8,014,137	\$24,350,415	7,199,448	\$22,450,503	814,689	\$1,899,912	754,923	\$1,760,564	59,766	\$139,348
Alabama.....	43	39	4	144,843	578,511	129,620	529,433	15,223	49,078	15,223	49,078	.....	.....
Arkansas.....	41	38	3	144,277	456,813	138,015	436,312	6,262	20,501	6,262	20,501	.....	.....
California.....	62	54	8	331,803	1,106,511	319,423	1,042,722	12,380	63,789	11,504	59,409	876	4,380
District of Columbia.....	10	6	4	131,349	369,502	84,524	260,990	46,825	108,512	19,825	37,512	27,000	71,000
Georgia.....	54	48	6	241,205	873,059	222,555	814,856	18,650	58,203	18,650	58,203	.....	.....
Illinois.....	58	43	15	342,198	915,824	260,542	812,977	81,656	102,847	81,656	102,847	.....	.....
Indiana.....	70	66	4	311,517	765,776	285,511	707,576	26,006	58,200	26,006	58,200	.....	.....
Kansas.....	50	44	6	185,603	610,339	166,718	552,183	18,885	58,156	18,885	58,156	.....	.....
Kentucky.....	52	48	4	265,620	790,252	233,424	698,115	32,196	92,137	32,196	92,137	.....	.....
Mississippi.....	43	37	6	143,131	610,851	136,368	582,465	6,763	28,386	6,763	28,386	.....	.....
Missouri.....	66	53	13	551,033	1,249,581	411,818	1,039,128	139,215	210,453	123,095	178,213	16,120	32,240
New York.....	66	58	8	915,961	1,871,916	847,935	1,725,653	68,026	146,263	66,826	143,080	1,200	3,183
Ohio.....	93	69	24	621,542	1,366,950	499,922	1,147,007	121,620	219,943	113,690	211,083	7,930	8,860
Oregon.....	27	20	7	43,456	219,149	39,738	191,914	3,718	27,235	3,718	27,235	.....	.....
Pennsylvania.....	123	109	14	1,017,380	2,766,482	988,853	2,685,128	28,527	81,354	28,527	81,354	.....	.....
Rhode Island.....	6	3	3	33,800	67,986	9,331	19,023	24,469	48,963	24,469	48,963	.....	.....
Tennessee.....	42	37	5	192,697	727,263	177,824	674,560	14,873	52,703	14,873	52,703	.....	.....
Texas.....	134	125	9	490,414	2,220,874	426,755	2,014,702	63,659	206,172	63,659	206,172	.....	.....
Virginia.....	51	48	3	189,109	653,482	166,909	587,961	22,200	65,521	22,200	65,521	.....	.....
All other states.....	392	1,375	217	1,717,199	6,129,294	1,653,663	5,927,798	63,536	201,496	56,896	181,811	6,640	19,685

¹ Includes establishments distributed as follows: Arizona, 13; Colorado, 16; Connecticut, 7; Delaware, 10; Florida, 47; Idaho, 1; Indian Territory, 22; Iowa, 4; Louisiana, 62; Maryland, 27; Massachusetts, 1; Nebraska, 1; Nevada, 2; New Jersey, 39; New Mexico, 7; North Carolina, 32; Oklahoma, 22; South Carolina, 18; Utah, 1; Washington, 12; West Virginia, 30; Wisconsin, 1.

² Includes establishments distributed as follows: Arizona, 2; Colorado, 1; Connecticut, 2; Florida, 1; Idaho, 1; New Jersey, 2; New Mexico, 2; North Carolina, 1; Oklahoma, 1; Washington, 2; West Virginia, 2.

Of the total number of establishments manufacturing ice for sale, the establishments manufacturing ice as a partial product constituted 11 per cent of the total number and their production formed 10.2 per cent in quantity of the total ice manufactured for sale and 7.8 per cent in value.

The average value per ton of the ice manufactured as a partial product was materially less than that for the ice industry proper, the former being \$2.33 per ton as compared with \$3.12 per ton for the latter. In certain states the production of establishments otherwise classified forms a large part of the total product,

notably as follows: In Rhode Island, the partial product constituted 72.4 per cent of the total ice manufactured for sale; in the District of Columbia, 35.6 per cent; Missouri, 25.3 per cent; Illinois, 23.9 per cent; Ohio, 19.6 per cent; Texas, 13 per cent; Kentucky, 12.1 per cent; Virginia, 11.7 per cent; Alabama, 10.5 per cent; and Kansas, 10.2 per cent.

The industry in large cities.—Table 8 is a summary of the statistics of ice manufacture for cities of 20,000 inhabitants and over, arranged in the order of their

rank according to the number of tons produced for 1905.

According to the amount of ice produced New York, by reason of its enormous population, ranked first among the cities for 1905 and for 1900. Of the 778,991 tons manufactured for 1905, 739,717 tons were can ice and the remainder plate ice. For Philadelphia, which ranked next in production, 460,817 tons were reported, of which 403,160 tons were can ice and the remainder plate ice.

TABLE 8.—SUMMARY FOR CITIES HAVING A POPULATION IN 1900 OF 20,000 AND OVER: 1905.

CITY.	Rank by num- ber of tons.	Num- ber of estab- lish- ments.	Capital.	SALARIED OFFI- CIALS, CLERKS, ETC.		WAGE-EARNERS AND WAGES.		Miscella- neous expenses.	Cost of materials used.	PRODUCTS.			
				Num- ber.	Salaries.	Average number.	Wages.			Total value.	Ice.		All other.
											Tons.	Value.	
Total.....		358	\$38,759,230	1,098	\$1,057,638	4,992	\$3,077,527	\$2,511,032	\$3,450,576	\$13,057,187	4,574,137	\$12,172,290	\$884,897
New York, N. Y.....	1	35	5,125,310	69	73,815	504	363,244	313,752	522,963	1,501,625	778,991	1,501,625	
Brooklyn borough.....		8	847,332	18	23,137	99	67,858	53,421	89,334	261,229	137,729	261,229	
Manhattan and Bronx boroughs.....		17	3,706,891	37	38,084	349	260,935	235,024	368,632	1,074,990	574,233	1,074,990	
Richmond and Queens boroughs.....		10	571,087	14	12,594	56	34,451	25,307	64,997	165,406	67,029	165,406	
Philadelphia, Pa.....	2	32	3,634,591	77	65,965	407	249,644	203,773	353,408	1,188,028	460,817	1,152,631	35,397
St. Louis, Mo.....	3	9	1,523,465	31	38,109	167	124,163	73,998	186,443	515,753	232,495	472,396	43,357
Baltimore, Md.....	4	9	1,323,873	21	30,647	145	84,862	66,304	143,219	574,643	186,776	574,632	11
New Orleans, La.....	5	16	1,918,231	35	34,115	129	85,879	94,655	140,968	451,403	165,464	451,358	45
Cincinnati, Ohio.....	6	10	1,146,256	23	26,624	109	68,288	64,148	99,601	331,603	149,481	296,319	35,284
Pittsburg, Pa.....	7	6	1,615,505	60	72,979	321	181,536	131,115	105,656	599,250	129,406	431,686	107,564
Cleveland, Ohio.....	8	4	666,709	8	10,320	43	32,821	42,971	45,112	194,885	102,887	194,885	
Chicago, Ill.....	9	3	341,053	52	46,858	133	77,781	71,835	86,744	349,033	95,661	278,757	70,276
Los Angeles, Cal.....	10	5	1,272,226	20	23,225	144	114,089	116,417	91,067	470,185	86,332	308,685	161,500
Washington, D. C.....	11	6	700,018	13	12,218	94	46,430	43,096	71,426	260,990	84,524	260,990	
San Francisco, Cal.....	12	4	815,552	9	11,040	84	76,136	60,735	68,484	278,107	82,012	227,885	50,222
Louisville, Ky.....	13	6	493,809	15	17,151	57	33,612	22,785	40,997	199,726	74,930	199,726	
Memphis, Tenn.....	14	4	437,317	31	32,063	179	109,703	78,568	39,895	309,953	73,107	309,953	
Newark, N. J.....	15	3	813,039	10	15,326	58	39,235	29,443	38,889	168,014	73,051	168,014	
Kansas City, Mo.....	16	4	412,810	10	14,025	73	48,037	17,631	72,769	156,589	68,632	137,350	19,239
Allegheny, Pa.....	17	4	667,755	19	23,768	62	45,032	56,376	40,691	216,126	68,314	202,137	13,989
Indianapolis, Ind.....	18	10	375,118	23	12,643	75	44,399	21,272	38,588	151,655	67,992	132,170	19,485
Columbus, Ohio.....	19	4	657,500	18	10,448	93	42,074	21,324	34,284	128,390	66,025	120,991	7,399
Nashville, Tenn.....	20	3	128,900	9	9,480	53	24,555	15,498	32,721	120,316	41,864	120,316	
Norfolk, Va.....	21	4	592,013	9	6,960	60	23,929	38,233	51,310	131,425	40,494	101,425	30,000
Dallas, Tex.....	22	4	469,685	12	16,595	40	25,799	26,966	41,013	149,199	36,889	138,468	10,731
Mobile, Ala.....	23	7	391,619	14	9,580	55	27,724	16,608	36,054	143,908	34,502	143,908	
Evansville, Ind.....	24	3	374,206	12	10,964	34	17,952	20,010	15,366	84,256	31,942	80,506	3,750
Pueblo, Colo.....	25	3	127,200	6	5,550	29	19,565	14,385	16,861	88,550	27,350	85,550	3,000
Portland, Oreg.....	26	6	257,000	6	6,510	45	37,750	15,124	26,268	136,900	26,600	116,000	20,900
Seattle, Wash.....	27	4	329,700	5	8,700	55	44,700	17,535	21,523	116,484	26,500	99,484	17,000
Charleston, S. C.....	28	4	306,830	3	2,700	38	18,778	10,289	32,711	71,586	26,340	71,586	
Augusta, Ga.....	29	3	179,500	12	8,240	18	6,200	21,468	14,536	63,000	26,000	63,000	
Richmond, Va.....	30	3	328,967	8	10,590	64	28,226	11,984	23,173	94,333	25,795	82,029	12,304
Fort Worth, Tex.....	31	4	188,500	9	9,727	51	32,744	11,811	28,336	107,531	24,431	104,531	3,000
Camden, N. J.....	32	3	121,894	2	1,280	11	7,177	8,085	15,749	54,540	24,260	54,540	
Galveston, Tex.....	33	3	196,895	5	4,555	28	16,075	13,628	30,184	83,147	20,550	83,147	
San Antonio, Tex.....	34	3	238,742	13	12,120	28	13,902	14,198	23,668	77,346	18,057	76,346	1,000
Wichita, Kans.....	35	3	175,578	16	13,285	27	20,291	11,176	13,748	74,154	16,200	74,154	
Wheeling, W. Va.....	36	3	213,931	2	2,340	26	18,805	15,514	7,915	48,188	13,679	48,188	
Knoxville, Tenn.....	37	3	119,602	11	6,565	20	8,765	7,811	7,771	46,166	12,645	46,147	19
All other cities ¹		118	10,078,331	400	340,558	1,433	817,625	690,506	790,465	3,319,600	1,053,142	3,160,175	159,425

¹ Includes establishments distributed as follows: Akron, Ohio, 1; Allentown, Pa., 2; Altoona, Pa., 2; Anderson, Ind., 1; Atlanta, Ga., 1; Austin, Tex., 2; Birmingham, N. Y., 1; Birmingham, Ala., 2; Bloomington, Ill., 1; Bridgeport, Conn., 2; Buffalo, N. Y., 2; Canton, Ohio, 1; Chattanooga, Tenn., 1; Chester, Pa., 1; Colorado Springs, Colo., 2; Columbia, S. C., 2; Covington, Ky., 2; Dayton, Ohio, 1; Decatur, Ill., 1; Denver, Colo., 2; Des Moines, Iowa, 1; East St. Louis, Ill., 1; Elizabeth, N. J., 2; Elmira, N. Y., 1; Erie, Pa., 1; Fort Wayne, Ind., 1; Hamilton, Ohio, 1; Houston, Tex., 2; Jamestown, N. Y., 1; Jacksonville, Fla., 2; Johnstown, Pa., 1; Joliet, Ill., 1; Joplin, Mo., 1; Kansas City, Kans., 1; Lancaster, Pa., 1; Leavenworth, Kans., 2; Lexington, Ky., 2; Lima, Ohio, 1; Lincoln, Neb., 1; Little Rock, Ark., 2; McKeesport, Pa., 2; Macon, Ga., 2; Montgomery, Ala., 2; Muncie, Ind., 2; New Albany, Ind., 2; Newcastle, Pa., 2; New Haven, Conn., 1; Newport, Ky., 1; Newport, R. I., 1; Norristown, Pa., 1; Oakland, Cal., 2; Orange, N. J., 1; Peoria, Ill., 1; Petersburg, Va., 1; Poughkeepsie, N. Y., 1; Quincy, Ill., 1; Rochester, N. Y., 1; Reading, Pa., 2; Roanoke, Va., 2; Sacramento, Cal., 1; Salt Lake City, Utah, 1; San Jose, Cal., 1; Savannah, Ga., 2; Shenandoah, Pa., 1; South Bend, Ind., 1; Springfield, Ill., 2; Springfield, Mo., 2; Springfield, Ohio, 1; St. Joseph, Mo., 1; Spokane, Wash., 1; Tacoma, Wash., 2; Terre Haute, Ind., 2; Toledo, Ohio, 1; Topeka, Kans., 2; Trenton, N. J., 2; Waco, Tex., 2; Wilkesbarre, Pa., 1; Williamsport, Pa., 1; Wilmington, Del., 2; Wilmington, N. C., 2; Yonkers, N. Y., 1; Youngstown, Ohio, 1; Zanesville, Ohio, 1.

For the 16 establishments in New Orleans, 165,464 tons were reported, or more than one-half of the production of the 62 plants situated in the state of Louisiana. The 9 establishments in St. Louis produced 232,495 tons, or more than one-half of the total for the 53 plants located in the state of Missouri. For Dallas with 4 plants, Fort Worth with 4, Galveston with 3, and San Antonio with 3, the production of ice

amounted to 99,927 tons, or nearly one-fourth of the total quantity produced by the 125 plants in the state of Texas.

From a consideration of the statistics presented in Tables 5 and 7 it is seen that the production of the plants in the cities formed a large proportion of the total production in the states in which the cities are located. The 35 plants in New York city alone produced

778,991 tons, or a little more than nine-tenths of the total amount of ice manufactured by the 58 establishments in the state of New York. The 42 plants in 3 of the large cities in Pennsylvania produced 658,537 tons, or about two-thirds of the total for the 109 establishments in the state.

These tables show, moreover, that as a rule the average capacity of the plants located in the cities was greater than the average for all the plants in the respective states. For New York city the average product per establishment was 22,257 tons, while the average for the state was only 14,620 tons. For Texas the production per plant was 3,414 tons, while for its large cities shown in Table 5 the average ranged from 6,019 tons for San Antonio to 9,222 tons for Dallas. For the cities in Ohio the average tonnage ranged from 14,948 for Cincinnati to 25,722 for Cleveland, and the average for the state was 7,245 tons.

Exports.—Ice was exported during the year ending June 30, 1904, to the following countries: Quebec, Ontario, Manitoba, and other Canadian points, 4,836 tons, valued at \$4,866; Mexico, 1,132 tons, valued at \$9,119; West Indies, 6,379 tons, valued at \$7,254; and South America, 5,399 tons, valued at \$6,744. The ice exported is almost exclusively natural, the manufactured product being kept for home consumption. The

figures from a trade standpoint are comparatively of no importance.

The quantity of ice exported will probably decrease as time advances, for artificial ice plants are being installed abroad, and steamships are being equipped with refrigerator systems. In 1904, as compared with 1900, there was an increase in the number of tons shipped but a reduction in the total value and in the price per ton.

Many efforts have been made to establish a trade in the exportation of ice, but, with few exceptions, they have failed because of the large losses sustained.

The exportation of ice from the United States, as reported to the Bureau of Statistics, at intervals of five years from 1850 to 1904, is shown in the following tabular statement:

Quantity and value of ice exported: 1850 to 1904.¹

YEAR. ²	Tons.	Value.	YEAR.	Tons.	Value.
1904.....	17,746	\$27,983	1875.....	53,724	\$208,249
1900.....	13,720	29,501	1870.....	65,802	267,702
1895.....	17,295	41,915	1865.....	59,927	225,825
1890.....	44,849	111,762	1860.....	49,153	183,134
1885.....	38,901	89,420	1855.....	41,117	190,793
1880.....	45,666	136,686	1850.....	.....	107,018

¹ Bureau of Statistics, Department of Commerce and Labor, "Commerce and Navigation of the United States."

² Year ending June 30.

HISTORICAL AND DESCRIPTIVE.

Refrigeration and the artificial production of ice as carried on at the present time are the result of many years of study and experimentation, and in many respects the various stages through which the artificial ice industry has passed are of unusual interest.

It is not known when preparations for producing artificial cold were first used, but the subject is mentioned many times in the writings of the ancient Egyptians and Greeks, showing that those nations were familiar with the first principles of producing refrigeration. It was known that if a porous clay vessel filled with water is left in the shade or in a current of air, the water becomes cold, and this method of cooling water was in general use.

As time progressed it was found that ice and snow preserved in caves or holes in the earth could be used for cooling purposes. This discovery was made use of first in Greece and at a later period in France.

A process of producing ice was introduced in India at an early date and is still followed in certain sections of that country. In this process a number of porous earthen trays are smeared with butter to prevent the ice from adhering, and placed on a bed of straw or sugar cane halms about 4 or 5 inches thick. The water to be frozen is placed in them in the evening, and during the night the extremely rapid evaporation through the buttered trays and into the dry, hot atmosphere causes a shallow crust of ice to form on the

surface and sides of the trays. In the early morning hours the ice is removed with the aid of an iron hook and stored away for use.

At a more recent date the French and English people became very much interested in the subject of refrigeration and began experiments with salts and chemicals mixed with water or snow. Concentrated and persistent study led to the discovery of liquid gases and their value as cooling agents, but many years elapsed before an advantageous method of applying this discovery was developed. Finally, the laws governing the compression, liquefaction, and expansion of these gases were comprehended, and machines were produced which could successfully carry out the theory of refrigeration. The invention of the first ice machine is accredited to Mr. Jacob Perkins, an American civil engineer residing in London, in which city he obtained his patent in 1834. His machine used ether as a refrigerant. The expansion pipes were immersed in brine, as they are in the can ice system of to-day, but wooden boxes were used instead of iron cans. This invention is generally acknowledged to be the forerunner of the modern compressor system.¹

Although artificial ice was produced in commercial quantities as long ago as 1755, it was not generally

¹ "Ice and Refrigeration," August, 1901, page 46.

manufactured until about thirty-five years ago, at which time the demand for refrigerants in connection with the shipping of southern fruit to other sections of the United States became of great importance. This, combined with the demand for ice for use in the transportation of meat, forced the artificial ice industry ahead at a marvelous rate.

Since there is more need of refrigerants in the South, the first outlay of capital was invested in that section, the first plant of note being erected at New Orleans in 1866.

The modern ice manufacturing plant is equipped with one or more of the following systems: Compressor, absorption, vacuum, or cold air. The first two systems are used very generally throughout the United States. The third is rarely used in this country, being in operation in only one establishment. The fourth is generally used on shipboard. While all of these systems accomplish the same result, in that they absorb heat and furnish refrigeration, the essential principles are radically different.

The compressor system involves the use of a very volatile liquid or a gas which can readily be reduced to a liquid. Ether, carbonic acid gas, carbonic anhydride, or ammonia is generally used, ammonia being preferable for most machines. The ammonia gas used is of two grades, one of which is strictly anhydrous and the other slightly humid. The humid variety is preferred for some machines, because the moisture present absorbs the heat produced during compression, and consequently the cylinder of the compressor does not become overheated, the theory being that if the cylinder is cool it will receive more gas during the suction than it would if it were hot, with the result that it will turn out more compressed gas at the end of each stroke of the piston.

The majority of compressor machines now in use employ anhydrous ammonia exclusively and have jacketed compressors through which cool water is continually flowing. The ammonia gas, condensed at a pressure of from 125 to 175 pounds to the square inch, is forced into an atmospherically or water cooled worm or coil, where it is chilled and reduced to a liquid form ready for refrigerant purposes. This coil is connected by an expansion valve with a similar coil known as the expansion pipe. Upon being released this liquid instantly becomes a gas, and in the process absorbs the heat from the surrounding objects. After completing its work as a refrigerant it returns to the compressor and starts its cycle anew.

The anhydrous ammonia used in this system has a molecular weight of 17 and a density of 8.5, and contains only .025 per cent of moisture.¹ When in a liquid state it boils at the extremely low temperature of 40° below zero.

The absorption system, which was invented about the year 1850 by Ferdinand Carré, involves an entirely

different set of principles. Instead of anhydrous ammonia, aqua or liquid ammonia of 26° strength at 60° F. is used. This liquid is forced into a tank, which is furnished with a steam coil and is kept at a specified degree of heat, just below the boiling point of water. Here the gas in solution is eliminated and the necessary amount of pressure produced to force the gas into the condensing coil where it is chilled, and becomes a liquid in an almost anhydrous state. It then goes through an expansion valve into an expansion pipe, where it performs its work of refrigeration. At the end of the expansion pipe is a suction pump which forces the gas back to the cooled mother water, which absorbs it in the ratio of one volume of water to five hundred of gas. The aqua ammonia resulting is pumped into the generator to be redistilled. Although these are distinctly separate operations, they follow each other in such quick succession as to be practically continuous and form stages of a closed cycle.

The cold air system, patented in 1857, was invented by Dr. John Gorrie in 1849 and consists of very simple machinery, in which air is used as the means of refrigeration. A double pump or compressor, a cooling worm connected with a receiving tank for the liquid air, and a jacketed auxiliary pump compose the necessary equipment.² The compressed air is forced into a cooling coil, where it is condensed to a liquid which flows into a receiving tank, and thence to the auxiliary pump cylinder which is driven by the expansion of the liquid. During this expansion it absorbs the heat from the brine circulating through the jacket of the auxiliary. This brine in turn flows through an ice making tank and reduces its temperature accordingly.

As a rule the cold air system is used on vessels and launches, chiefly because of its safe character as regards explosions and its freedom from gaseous odors. The compressor system also is used on vessels, and when this is the case, carbonic anhydride is preferred as the refrigerant. The greatest drawback to the cold air system is that the pipes are continually becoming frosted inside, which reduces their efficiency for refrigerating to such an extent that the machines have to be stopped occasionally and the pipes blown out with hot air.

The vacuum system invented by Dr. William Cullen in 1755 is based upon the principle of the cooling of water by its own evaporation. The machinery used is very simple, consisting of a small rejector pump, a large vacuum pump, and a still for distilling the water from the sulphuric acid, which absorbs from 10 to 12 tons of water for every ton of ice produced. The pump produces a vacuum over the water and the acid absorbs the vapor which forms to take the place of the displaced air, thus causing the water to freeze. The underlying purpose is to reduce the pressure so that the boiling point of water, which under normal atmos-

¹ "Refrigeration, Cold Storage, and Ice Making," page 48.

² "Refrigeration, Cold Storage, and Ice Making," page 192.

pheric pressure is 212° F. will be 32° F. To produce this condition the atmospheric pressure has to be reduced until it becomes a minus or vacuum of .089 pound to the square inch. This is absolutely necessary for the production of ice by this process. This ice is always opaque and more or less porous, but is a very good product.

Can ice is invariably made of distilled water, which is usually obtained by the condensation of the exhaust steam from the engines running the compressors, although in some cases live steam is condensed and used. When exhaust steam is condensed, it is free from mineral and vegetable matter, but it retains more or less oil from the engines. In order to extract this oil, the presence of which would greatly diminish the commercial value of the ice, the mixture is passed through an oil filter and thence through a series of strainers composed of strata of gravel, sand, and charcoal. Even when this process is carefully followed the gases and acids formed through distillation sometimes remain and cause the ice when melted to have a disagreeable taste.

If distilled water were not used the can ice would be opaque, as a result of the minerals and other substances held in solution. Although a very pure and germless grade of can ice is produced from distilled water, it has the disadvantage of a soft porous core. The water being frozen in a can immersed in brine, hardens from all sides toward the center, where some air remains and produces the soft porous core. Since this core has a relatively greater surface than the rest of the block, it dissolves very rapidly into its normal liquid state upon being exposed to the atmosphere. This ice is much superior to natural ice, even when the mud and other contaminating substances have been precipitated during the freezing of rivers and lakes, and a fairly good clear product has been obtained. Ice harvested from rivers and ponds containing sewage is always to be rejected, as it is unfit for domestic use because of the typhoid and other disease germs which may be present in such waters.

Plate ice is not made of distilled water, but of the best spring or well water obtainable, and it is said to possess certain qualities that can not be secured in ice made from distilled water. In sections of the country where water is impregnated with alkali, lime, or other obnoxious substances, plate ice can not be used for drinking or in cooking, but it meets all requirements for storage, etc., even better than can ice, because it is frozen evenly. It is said, moreover, that the cost of

the production of plate ice is considerably less than that of can ice.

Plate ice is produced in tanks, usually about 16 feet long, 8 feet deep, and 2 feet wide, with sides of iron plates, which are in contact with direct expansion coils. The tanks are filled with water, which is kept in an agitated condition by air jets, the result being that ice forms on the plates as it would on the top of a running brook and is not permitted to congeal in the center. This is primarily the secret of producing an extremely hard, clear ice with neither a porous core nor a soft surface.

Another kind of ice, which is made on the same principle as plate ice, is known as block ice. This is produced directly on the ammonia pipes without the use of steel plates, and is separated from the pipes by means of a steam knife, which cuts the ice into blocks about 8 feet long, 2 feet wide, and 8 inches thick.

It is asserted that plate and block ice made by any water that is not contaminated with malignant bacteria will be as clear and as pure as though it were made of the purest spring water.

As a result of the conditions created by ice plants, the immediate shipment of fruits and produce is no longer necessary, and goods ordinarily classed as perishable can be kept for a long time without marked deterioration in quality.

At present, cars, ships, and warehouses are equipped with cold storage systems. Without this equipment the fresh meat industry could not be carried on as it is to-day. Meat shipped from this country to Europe, Asia, China, or the Philippines undergoes practically no change of temperature from the time of its first chilling at the storage rooms until it is needed for consumption in the locality to which it has been shipped.

The history of ice manufacture as an industry and additional descriptive matter of a technical character were included in the Report on Manufactures, Twelfth Census, Part III, page 675, to which the reader is referred.

Table 9, which is a comparative summary for the United States by states and territories, shows the principal items of capital, salaries and wages, miscellaneous expenses, materials used, and products as reported at the censuses of 1900 and 1905.

The detailed statistics for the industry for 1905 are shown in Table 10. In this table totals for each state and territory in which there were 3 or more establishments are presented separately, and the statistics for the other states are combined so as not to disclose the operations of individual establishments.

MANUFACTURES.

TABLE 9.—COMPARATIVE SUMMARY, BY

										MATERIALS USED.					
STATE OR TERRITORY.	Census.	Number of establishments.	Capital.	SALARIED OFFICIALS, CLERKS, ETC.		WAGE-EARNERS AND WAGES.		Miscellaneous expenses.	Aggregate cost.	Ammonia.					
				Number.	Salaries.	Average number.	Wages.			Compressor system.					
										Total.		Anhydrous ammonia.			
										Pounds.	Cost.	Pounds.	Cost.	Pounds.	Cost.
1 2 United States.	1905 1900	1,320 787	\$66,592,001 38,204,054	2,332 1,545	\$2,001,111 1,234,803	10,101 6,933	\$5,549,162 3,424,305	\$4,014,861 1,779,890	\$6,011,325 3,339,724	3,428,431 2,379,989	\$613,138 359,549	1,944,266 946,666	\$493,524 249,838	1,795,893 946,666	\$484,769 249,838
3 4 Alabama.....	1905 1900	39 23	1,480,230 631,667	61 43	52,360 35,680	243 168	104,009 56,251	84,944 31,777	122,037 53,399	110,344 122,415	15,225 12,766	32,536 24,989	9,061 6,745	32,536 24,989	9,061 6,745
5 6 Arizona.....	1905 1900	13 9	420,343 228,670	13 12	11,855 10,370	72 44	54,652 30,608	34,861 10,408	57,836 41,505	12,654 10,279	4,948 4,133	12,654 10,279	4,948 4,133	12,654 10,279	4,948 4,133
7 8 Arkansas.....	1905 1900	38 18	1,317,075 637,639	65 26	45,433 24,330	261 163	123,077 61,064	74,003 30,762	106,217 51,700	35,344 20,984	10,093 5,910	35,344 20,984	10,093 5,910	33,844 20,984	9,973 5,910
9 10 California.....	1905 1900	54 20	3,549,556 1,305,971	67 64	70,865 62,661	415 190	335,141 132,023	254,873 89,759	298,926 67,653	305,695 67,653	36,899 12,913	55,661 24,653	17,592 8,013	46,031 24,653	16,928 8,013
11 12 Colorado.....	1905 1900	16 6	1,240,294 664,360	35 18	35,476 21,235	138 93	92,568 53,517	54,226 12,611	70,592 31,446	37,120 44,264	6,577 5,564	27,641 5,646	5,322 1,714	13,032 5,646	4,299 1,714
13 14 Connecticut.....	1905 1900	7 5	362,683 316,722	20 15	14,181 17,681	42 38	31,164 21,041	17,137 11,363	24,090 16,014	7,770 5,313	1,527 1,371	5,058 5,313	1,292 1,371	5,058 5,313	1,292 1,371
15 16 Delaware.....	1905 1900	10 7	316,428 259,501	17 8	9,662 4,316	64 28	30,869 12,480	28,562 8,214	25,858 13,654	12,621 6,030	3,174 1,580	12,621 6,030	3,174 1,580	12,621 6,030	3,174 1,580
17 18 District of Columbia	1905 1900	6 4	700,018 629,992	13 16	12,218 14,310	94 83	46,430 40,603	43,096 36,979	71,426 61,267	44,149 9,310	11,589 2,314	44,149 9,310	11,589 2,314	44,149 9,310	11,589 2,314
19 20 Florida.....	1905 1900	47 35	1,360,095 740,131	69 24	59,781 21,371	295 244	150,575 100,533	93,852 21,472	171,292 131,816	186,934 149,086	20,111 13,276	29,458 17,831	8,346 5,174	29,458 17,831	8,346 5,174
21 22 Georgia.....	1905 1900	48 32	1,704,716 975,100	105 48	76,056 42,535	399 251	141,746 86,210	167,130 49,654	200,457 126,512	166,273 107,925	21,409 12,736	59,712 26,090	14,779 6,773	51,862 26,090	14,365 6,773
23 24 Illinois.....	1905 1900	43 29	2,162,126 1,689,253	134 92	110,466 75,210	485 624	268,786 303,317	175,516 173,895	247,374 173,850	141,702 74,829	24,366 14,813	80,687 49,256	19,129 12,324	74,145 49,256	18,782 12,324
25 26 Indian Territory...	1905 1900	22 3	605,859 62,974	26 4	19,525 1,525	82 10	44,043 4,003	34,294 1,830	44,792 5,327	15,015 1,550	4,543 443	14,807 1,550	4,481 443	14,807 1,550	4,481 443
27 28 Indiana.....	1905 1900	66 47	2,204,227 1,530,603	104 61	73,039 43,856	391 343	199,113 161,902	110,263 67,954	161,357 121,390	115,831 144,476	15,256 15,809	34,117 28,017	8,857 7,717	33,517 28,017	8,827 7,717
29 30 Iowa.....	1905 1900	4 3	186,824 165,300	6 10	5,416 3,055	20 33	11,968 15,067	12,205 9,014	16,214 10,530	6,900 24,600	976 1,749	2,500 2,100	712 549	2,500 2,100	712 549
31 32 Kansas.....	1905 1900	44 19	1,372,599 425,199	67 20	55,186 13,420	237 114	145,469 55,427	68,379 15,715	141,100 55,784	58,471 42,938	11,752 5,891	38,489 13,019	9,272 3,434	31,529 13,019	8,854 3,434
33 34 Kentucky.....	1905 1900	48 31	1,815,678 1,200,117	66 52	54,618 32,600	345 192	152,086 84,321	114,818 64,879	138,501 81,564	155,601 99,007	16,866 12,006	32,541 23,527	7,559 6,612	28,041 23,527	7,324 6,612
35 36 Louisiana.....	1905 1900	62 36	3,495,818 2,265,961	101 78	86,665 67,132	458 299	236,102 126,067	171,472 85,103	333,069 193,241	171,907 191,178	29,417 24,424	70,530 32,807	20,475 9,222	69,030 32,807	20,375 9,222
37 38 Maryland.....	1905 1900	27 18	1,688,339 649,692	50 19	45,861 14,535	253 138	125,834 74,633	90,594 24,490	180,382 84,070	85,214 22,515	20,263 5,177	85,214 22,515	20,263 5,177	85,214 22,515	20,263 5,177
39 40 Mississippi.....	1905 1900	37 23	1,265,613 597,871	79 28	63,747 23,900	274 162	118,528 56,503	82,513 33,730	145,197 68,520	54,338 44,115	11,857 6,489	31,008 10,216	8,787 2,541	31,008 10,216	8,787 2,541
41 42 Missouri.....	1905 1900	53 31	3,317,855 1,835,166	96 65	94,435 66,315	433 279	271,614 157,006	161,225 72,868	399,186 226,385	223,784 123,114	44,054 22,302	216,284 89,285	43,679 19,375	161,371 89,285	40,344 19,375
43 44 New Jersey.....	1905 1900	39 26	2,748,564 1,653,028	52 52	46,612 37,999	268 183	159,306 94,070	129,819 51,276	171,669 108,158	78,452 33,593	17,233 6,876	54,886 25,693	13,053 6,255	50,886 25,693	12,853 6,255
45 46 New Mexico.....	1905 1900	7 4	190,088 118,450	4 2	5,100 2,400	23 22	19,666 15,300	5,361 1,983	15,948 15,480	4,790 14,758	1,505 1,700	2,190 2,336	836 610	2,190 2,336	836 610
47 48 New York.....	1905 1900	58 41	5,972,164 2,554,722	99 63	99,592 51,789	603 319	424,095 201,394	365,461 177,727	576,563 268,695	205,232 102,629	51,336 23,274	194,881 89,129	49,368 21,726	194,881 89,129	49,368 21,726
49 50 North Carolina.....	1905 1900	32 23	860,441 523,243	69 37	57,516 32,317	235 161	82,572 52,647	52,041 18,042	97,365 66,291	27,931 44,418	6,876 6,143	21,299 16,338	5,952 4,415	21,299 16,338	5,952 4,415
51 52 Ohio.....	1905 1900	69 42	4,495,209 1,777,430	141 79	111,197 53,410	520 299	295,764 154,561	210,970 71,065	291,644 138,135	195,353 141,365	28,612 14,756	92,457 39,096	21,373 9,617	82,257 39,096	20,862 9,617
53 54 Oklahoma.....	1905 1900	22 7	735,368 194,323	39 16	28,097 13,080	115 51	63,333 28,171	45,178 17,968	76,266 30,662	21,009 10,328	6,168 1,833	20,809 2,530	6,108 733	20,809 2,530	6,108 733
55 56 Oregon.....	1905 1900	20 9	451,249 172,800	18 9	15,365 13,980	75 35	56,831 25,235	24,160 14,502	40,566 19,155	11,093 6,043	3,997 1,934	11,093 6,043	3,997 1,934	11,093 6,043	3,997 1,934
57 58 Pennsylvania.....	1905 1900	109 73	9,711,731 8,259,861	284 246	261,955 169,993	1,236 930	732,285 537,748	591,501 290,339	711,448 392,484	364,200 225,936	72,518 48,887	266,239 175,608	66,584 44,858	263,564 175,608	66,496 44,858

STATES AND TERRITORIES: 1905 AND 1900.

MATERIALS USED—continued.										PRODUCTS.									
Ammonia—Continued.										Ice.									
Compressor system—Con.		Absorption system.						Cost of fuel, mill supplies, all other materials, freight, and rent of power and heat.	Aggregate value.	Total.		Can.		Plate.		All other products (value).			
Aqua ammonia.		Total.		Anhydrous ammonia.		Aqua ammonia.				Tons.	Value.	Tons.	Value.	Tons.	Value.				
Pounds	Cost.	Pounds.	Cost.	Pounds	Cost.	Pounds	Cost.												
148,373	\$8,755	1,484,165 1,433,323	\$119,614 109,711	136,604 109,869	\$37,506 29,842	1,347,561 1,323,454	\$82,108 79,869	\$5,398,187 2,980,175	\$23,790,045 13,874,513	7,199,448 4,294,439	\$22,450,503 13,303,874	6,695,789 4,139,764	\$21,020,547 12,863,160	503,659 154,675	\$1,429,956 440,714	\$1,339,542 570,639	1 2		
		77,808 97,426	6,164 6,021	4,075	1,128	73,733 97,426	5,036 6,021	106,812 40,633	532,253 253,475	129,620 55,908	529,433 252,675	129,620 55,908	529,433 252,675				2,820 800	3 4	
								52,888 37,372	259,288 132,611	27,580 14,709	252,079 120,765	27,580 14,709	252,079 120,765				7,209 11,846	5 6	
1,500	120							96,124 45,790	487,917 236,289	138,015 51,236	436,312 225,029	138,015 51,236	436,312 225,029				51,605 11,260	7 8	
9,630	664	250,034 43,000	19,307 4,900	5,100 8,000	1,828 2,400	244,934 35,000	17,479 2,500	262,027 106,976	1,307,073 511,197	319,423 90,679	1,042,722 415,388	261,870 80,679	886,255 353,888	57,553 10,000	156,467 61,500	264,351 95,809	9 10		
14,609	1,023	9,479 38,618	1,255 3,850	2,279 5,389	752 1,693	7,200 33,229	503 2,157	64,015 25,882	376,086 204,029	113,049 51,545	371,686 204,029	113,049 51,545	371,686 204,029			4,400	11 12		
		2,712	235	420	109	2,292	126	22,563 14,643	120,774 95,304	35,175 25,950	108,172 95,304	29,504 21,650	85,488 73,804	5,671 4,300	22,684 21,500	12,602	13 14		
								22,684 12,074	141,583 71,240	38,692 26,738	141,577 71,240	8,146 24,700	36,041 61,050	30,546 2,038	105,536 10,190		15 16		
								59,837 58,953	260,990 182,575	84,524 64,950	260,990 147,575	55,933 44,450	179,947 105,575	28,591 20,500	81,043 42,000	35,000	17 18		
		157,476 131,255	11,765 8,102	9,625 1,905	2,761 576	147,851 129,350	9,004 7,526	151,181 118,540	684,388 438,782	169,051 125,184	676,707 437,382	167,251 125,184	667,507 437,382	1,800	9,200	7,681 1,400	19 20		
7,850	414	106,561 81,835	6,630 5,963	1,300 3,858	242 986	105,261 77,977	6,388 4,977	179,048 113,776	858,058 456,964	222,555 131,236	814,856 455,699	216,981 131,236	797,208 455,699	5,574	17,648	43,202 1,265	21 22		
6,542	347	61,015 25,573	5,237 2,489	8,562 5,140	2,204 1,350	52,453 20,433	3,033 1,139	223,008 159,037	940,007 990,827	260,542 249,813	812,977 877,178	232,305 249,013	729,987 869,178	28,237 800	82,990 8,000	127,030 113,649	23 24		
		208	62	208	62			40,249 4,884	242,334 19,540	45,476 3,060	238,735 19,440	45,476 3,060	238,735 19,440			3,599 100	25 26		
600	30	81,714 116,459	6,399 8,092	7,387 8,862	1,957 2,276	74,327 107,597	4,442 5,816	146,101 105,581	748,369 544,005	285,511 199,184	707,576 514,531	282,911 199,184	702,376 514,531	2,600	5,200	40,793 29,474	27 28		
		4,400 22,500	204 1,200			4,400 22,500	264 1,200	15,238 8,781	51,215 38,400	26,872 13,500	45,990 36,600	26,872 13,500	45,990 36,600			5,225 1,800	29 30		
6,960	418	19,982 29,919	2,480 2,457	5,565 3,354	1,590 1,001	14,417 26,565	890 1,456	129,348 49,893	585,317 196,310	166,718 62,486	552,183 193,310	166,718 62,486	552,183 193,310			33,134 3,000	31 32		
4,500	235	123,060 75,480	9,307 5,394	13,798 5,980	3,538 1,691	109,262 69,500	5,769 3,703	121,635 99,558	703,365 454,497	233,424 137,472	698,115 375,897	218,709 375,897	664,129 375,897	14,715	33,986	5,250 78,600	33 34		
1,500	100	101,377 158,371	8,942 15,202	12,729 20,819	3,637 5,825	88,648 137,552	5,305 9,377	303,652 168,817	1,099,726 591,500	300,334 179,716	1,047,703 563,561	300,334 179,716	1,047,703 563,561			52,023 27,939	35 36		
								160,119 78,893	729,553 358,668	228,541 120,740	728,577 358,668	134,197 116,800	430,566 348,083	94,344 3,940	298,011 10,585	976	37 38		
		23,330 33,899	3,070 3,948	4,280 8,973	1,195 2,330	19,050 24,926	1,875 1,618	133,340 62,031	603,485 288,739	136,368 57,207	582,465 268,175	136,368 57,207	582,465 268,175			21,020 20,564	39 40		
54,913	3,335	7,500 33,829	375 2,927			7,500 31,451	375 2,406	355,132 204,083	1,129,980 641,405	411,818 285,796	1,039,128 635,503	411,818 285,796	1,039,128 635,503			90,852 5,902	41 42		
4,000	200	23,566 7,900	4,180 621	12,746 1,000	3,302 230	10,820 6,900	878 391	154,436 101,282	647,564 391,685	238,172 169,755	618,956 379,776	181,202 154,615	479,441 341,176	56,970 15,140	139,515 38,600	28,608 11,909	43 44		
		2,600 12,422	669 1,090	1,600 300	592 90	1,000 12,122	77 1,000	14,443 13,780	83,657 77,775	16,337 10,915	82,357 77,775	16,337 10,915	82,357 77,775			1,300	45 46		
		10,351 13,500	1,968 1,548	6,670 4,000	1,774 1,048	3,681 9,500	194 500	525,227 245,421	1,748,871 1,051,372	847,935 457,779	1,725,653 1,025,308	798,045 456,279	1,624,806 1,015,308	49,890 1,500	100,847 10,000	23,218 26,064	47 48		
		6,632 28,080	924 1,728	2,432 410	651 115	4,200 27,670	273 1,613	90,489 60,148	417,868 228,305	110,414 61,338	417,868 228,305	110,414 61,338	417,868 228,305				49 50		
10,200	511	102,896 102,269	7,239 5,139	9,149 955	2,296 234	93,747 101,314	4,943 4,905	263,032 123,379	1,217,465 582,538	499,922 237,750	1,147,007 577,038	475,922 220,833	1,116,537 548,542	24,000 16,917	30,470 28,496	70,458 5,500	51 52		
		200 7,798	60 1,100	200 2,312	60 600			70,098 28,829	285,313 106,003	51,181 22,218	275,647 106,003	51,181 22,218	275,647 106,003			9,666	53 54		
								36,569 17,221	216,726 116,031	39,738 17,165	191,914 95,260	37,388 17,165	175,664 95,260	2,350	16,250	24,812 20,771	55 56		
2,675	88	97,961 50,328	5,934 4,029	6,388 4,386	1,605 1,106	91,573 45,942	4,329 2,923	638,930 343,597	2,935,607 2,038,504	988,853 735,018	2,685,128 2,000,931	916,692 684,144	2,481,640 1,866,770	72,161 50,874	203,488 134,161	250,479 37,573	57 58		

TABLE 9.—COMPARATIVE SUMMARY, BY

	STATE OR TERRITORY.	Census.	Number of establishments.	Capital.	SALARIED OFFICIALS, CLERKS, ETC.		WAGE-EARNERS AND WAGES.		Miscellaneous expenses.	MATERIALS USED.										
										Aggregate cost.	Ammonia									
											Total.						Compressor system.			
																	Total.		Anhydrous ammonia.	
Pounds.	Cost.	Pounds.	Cost.	Pounds.	Cost.															
59	Rhode Island ¹	1905	3	\$68,400	3	\$1,400	6	\$4,170	\$2,656	\$2,974	600	\$159	600	\$159	600	\$159				
60	South Carolina.....	1905	18	712,346	25	22,507	111	44,556	35,240	74,812	30,051	5,077	18,701	3,200	9,697	2,727				
61		1900	13	407,400	13	10,182	73	23,781	18,225	37,327	58,333	4,439	3,277	857	3,277	857				
62	Tennessee.....	1905	37	1,124,789	79	66,624	382	191,246	140,246	123,484	77,209	11,189	40,528	8,555	28,528	7,873				
63		1900	27	1,103,501	67	58,622	385	177,461	58,878	109,505	88,573	13,685	28,649	7,478	28,649	7,478				
64	Texas.....	1905	125	5,140,487	216	197,063	869	450,672	317,075	572,988	205,363	53,311	163,399	48,790	162,619	48,742				
65		1900	77	2,563,888	171	124,671	618	305,282	132,435	320,381	168,637	32,280	91,995	27,350	91,995	27,350				
66	Virginia.....	1905	48	1,805,126	56	41,083	346	138,044	97,015	171,545	191,138	28,625	87,369	22,356	87,369	22,356				
67		1900	30	1,198,981	46	34,934	205	87,193	37,174	106,323	88,607	12,928	28,137	8,334	28,137	8,334				
68	Washington.....	1905	12	486,025	11	14,160	99	78,062	44,929	41,241	15,775	3,999	8,100	2,841	7,650	2,805				
69		1900	4	252,360	13	13,750	35	25,700	10,735	17,318	6,883	2,605	6,883	2,605	6,883	2,605				
70	West Virginia.....	1905	30	1,286,955	36	28,095	176	94,426	63,196	60,530	45,239	9,161	33,375	8,472	32,715	8,441				
71		1900	8	413,452	19	13,716	80	39,537	11,188	22,327	74,870	5,573	4,100	975	4,100	975				
72	All other states.....	² 1905	7	236,683	6	7,900	36	30,360	16,050	26,379	7,329	2,470	7,329	2,470	7,329	2,470				
73		³ 1900	4	198,726	9	7,923	41	23,649	15,876	19,620	3,435	970	3,435	970	3,435	970				

¹Included in "all other states" in 1900.²Includes establishments distributed as follows: Idaho, 1; Massachusetts, 1; Nebraska, 1; Nevada, 2; Utah, 1; Wisconsin, 1.

STATES AND TERRITORIES: 1905 AND 1900—Continued.

MATERIALS USED—continued.										PRODUCTS.									
Ammonia—Continued.										Ice.									
Compressor system—Con.	Absorption system.								Cost of fuel, mill supplies, all other materials, freight, and rent of power and heat.	Aggregate value.	Total.		Can.		Plate.		All other products (value).		
	Aqua ammonia.		Total.		Anhydrous ammonia.		Aqua ammonia.				Tons.	Value.	Tons.	Value.	Tons.	Value.			
Pounds	Cost.	Pounds.	Cost.	Pounds	Cost.	Pounds	Cost.												
								\$2,815	\$19,023	9,331	\$19,023	8,612	\$17,225	719	\$1,798		59		
9,004	\$473	11,350	\$1,877	5,850	\$1,511	5,500	\$366	69,735	243,683	75,803	243,107	75,803	243,107			\$576	60		
		55,056	3,582	336	84	54,720	3,498	32,888	116,357	45,228	116,357	44,853	114,857	375	1,500		61		
12,000	682	36,681	2,634	2,281	615	34,400	2,019	112,295	684,420	177,824	674,560	177,824	674,560			9,860	62		
		59,924	6,207	12,757	3,438	47,167	2,769	95,820	538,107	158,931	538,107	158,931	538,107				63		
780	48	41,964	4,521	7,697	2,314	34,267	2,207	519,677	2,083,880	426,755	2,014,702	425,195	2,009,305	1,560	5,397	69,178	64		
		76,642	4,930	706	205	75,936	4,725	288,101	1,184,332	231,460	1,168,640	229,050	1,159,040	2,400	9,600	15,692	65		
		103,769	6,269	3,900	1,001	99,869	5,268	142,920	635,772	166,909	587,961	152,439	529,406	14,470	58,555	47,811	66		
		60,470	4,594	4,974	1,316	55,496	3,278	93,395	427,974	118,240	417,052	96,458	362,542	21,782	54,510	10,922	67		
450	36	7,675	1,158	2,175	733	5,500	425	37,242	243,015	51,872	226,015	44,872	191,015	7,000	35,000	17,000	68		
								14,713	103,600	17,300	103,600	17,300	103,600				69		
660	31	11,864	689	188	49	11,676	640	51,369	353,102	96,588	340,304	93,458	328,514	3,130	11,790	12,798	70		
		70,770	4,398	3,075	727	67,695	3,871	16,754	119,401	35,734	119,201	35,734	119,201			200	71		
								23,909	112,318	28,526	112,318	26,748	98,237	1,778	14,081		72		
								18,650	86,172	28,509	82,572	24,400	72,500	4,109	10,072	3,600	73		

³ Includes establishments distributed as follows: Nebraska, 1; Rhode Island, 2; Utah, 1.

TABLE 10.—MANUFACTURED ICE—DETAILED SUMMARY,

	United States.	Alabama.	Arizona.	Arkansas.	California.	Colorado.
1 Number of establishments.....	1,320	39	13	38	54	10
2 Capital, total.....	\$66,592,001	\$1,480,230	\$420,343	\$1,317,075	\$3,549,556	\$1,240,294
3 Land.....	\$8,855,242	\$176,652	\$25,000	\$116,152	\$438,727	\$110,721
4 Buildings.....	\$15,429,399	\$213,128	\$111,959	\$268,322	\$1,068,779	\$328,277
5 Machinery, tools, and implements.....	\$36,451,321	\$915,594	\$231,344	\$777,193	\$1,727,421	\$707,608
6 Cash and sundries.....	\$5,856,039	\$174,856	\$52,040	\$155,408	\$314,629	\$93,688
7 Proprietors and firm members.....	746	32	12	7	35	9
8 Salaried officials, clerks, etc.:—						
9 Total number.....	2,332	61	13	65	67	35
10 Total salaries.....	\$2,001,111	\$52,360	\$11,855	\$45,433	\$70,865	\$35,476
11 Officers of corporations—						
12 Number.....	695	30	5	16	10	11
13 Salaries.....	\$661,616	\$27,480	\$4,860	\$10,713	\$9,575	\$12,100
14 General superintendents, managers, clerks, etc.—						
15 Total number.....	1,637	31	8	49	57	26
16 Total salaries.....	\$1,339,495	\$24,880	\$6,995	\$34,720	\$61,290	\$23,376
17 Men—						
18 Number.....	1,514	29	8	47	53	26
19 Salaries.....	\$1,291,381	\$24,400	\$6,995	\$34,520	\$59,790	\$23,376
20 Women—						
21 Number.....	123	2	2	4	4	4
22 Salaries.....	\$48,114	\$480		\$200	\$1,500	
23 Wage-earners, including pieceworkers, and total wages:						
24 Greatest number employed at any one time during the year.....	15,841	416	103	454	544	190
25 Least number employed at any one time during the year.....	7,110	219	69	215	306	101
26 Average number.....	10,101	243	72	261	415	138
27 Total wages.....	\$5,549,162	\$104,009	\$54,652	\$123,077	\$335,141	\$92,568
28 Men 16 years and over—						
29 Average number.....	10,029	243	71	260	415	137
30 Wages.....	\$5,538,163	\$104,009	\$54,472	\$122,879	\$335,141	\$92,468
31 Women 16 years and over—						
32 Average number.....	18					
33 Wages.....	\$3,978					
34 Children under 16 years—						
35 Average number.....	54		1	1		1
36 Wages.....	\$7,021		\$180	\$198		\$100
37 Average number of wage-earners, including pieceworkers, employed during each month:—						
38 Men 16 years and over—						
39 January.....	5,590	97	51	116	312	88
40 February.....	5,802	100	52	129	334	97
41 March.....	6,871	130	55	150	354	106
42 April.....	9,272	253	68	226	404	117
43 May.....	11,843	293	79	307	440	143
44 June.....	13,801	373	101	366	469	163
45 July.....	14,755	396	97	399	513	180
46 August.....	14,722	394	97	402	490	192
47 September.....	13,759	362	81	404	489	181
48 October.....	10,698	251	62	308	441	155
49 November.....	7,338	146	59	172	394	125
50 December.....	5,897	121	50	141	340	97
51 Miscellaneous expenses, total.....	\$4,014,861	\$84,944	\$34,861	\$74,003	\$254,873	\$54,226
52 Rent of works.....	\$246,762	\$8,440	\$268	\$1,000	\$2,447	\$2,399
53 Taxes.....	\$465,570	\$13,950	\$4,494	\$10,318	\$21,819	\$5,546
54 Rent of offices, interest, insurance, and all other sundry expenses not hitherto included.....	\$3,280,087	\$62,554	\$20,299	\$62,085	\$230,607	\$46,281
55 Contract work.....	\$22,442		\$9,800	\$600		
56 Materials used, aggregate cost.....	\$6,011,325	\$122,037	\$57,836	\$106,217	\$298,926	\$70,592
57 Ammonia—						
58 Total pounds.....	3,428,431	110,344	12,654	35,344	305,695	37,120
59 Total cost.....	\$613,138	\$15,225	\$4,948	\$10,093	\$36,899	\$6,577
60 Anhydrous—						
61 Pounds.....	1,932,497	36,611	12,654	33,844	51,131	15,311
62 Cost.....	\$522,275	\$10,189	\$4,948	\$9,973	\$18,756	\$5,051
63 Aqua—						
64 Pounds.....	1,495,934	73,733		1,500	254,564	21,809
65 Cost.....	\$90,863	\$5,036		\$120	\$18,143	\$1,526
66 Fuel.....	\$4,365,316	\$88,484	\$44,141	\$77,502	\$189,245	\$49,842
67 Rent of power and heat.....	\$77,577	\$605			\$20,585	\$1,920
68 Mill supplies.....	\$328,794	\$9,085	\$3,675	\$6,682	\$16,119	\$2,011
69 All other materials.....	\$545,325	\$9,018	\$4,467	\$9,924	\$35,350	\$10,092
70 Freight.....	\$81,175	\$225		\$2,015	\$728	\$150
71 Products, aggregate value.....	\$23,790,045	\$532,253	\$259,288	\$487,917	\$1,307,073	\$376,086
72 Ice—						
73 Total tons.....	7,199,448	129,620	27,580	138,015	319,423	113,049
74 Total value.....	\$22,450,503	\$529,433	\$252,079	\$436,312	\$1,042,722	\$371,686
75 Can ice—						
76 Tons.....	6,695,789	129,620	27,580	138,015	261,870	113,049
77 Value.....	\$21,020,547	\$529,433	\$252,079	\$436,312	\$886,255	\$371,686
78 Plate ice—						
79 Tons.....	503,659				57,553	
80 Value.....	\$1,429,956				\$156,467	
81 All other products.....	\$1,339,542	\$2,820	\$7,209	\$51,605	\$264,351	\$4,400
82 Power:						
83 Number of establishments reporting.....	1,277	36	13	38	53	16
84 Total horsepower.....	195,171	3,784	1,190	4,633	6,188	2,363
85 Owned—						
86 Engines—						
87 Steam—						
88 Number.....	2,580	64	22	71	64	24
89 Horsepower.....	184,570	3,784	1,186	4,622	5,027	2,127
90 Gas and gasoline—						
91 Number.....	22				1	
92 Horsepower.....	618				5	
93 Water wheels—						
94 Number.....	18				9	
95 Horsepower.....	1,075				283	
96 Electric motors—						
97 Number.....	287			2	44	11
98 Horsepower.....	3,511			11	400	176
99 Other power, horsepower.....	1,979					
100 Rented—						
101 Electric motors—						
102 Number.....	50		2		20	2
103 Horsepower.....	1,068		4		473	60
104 Other kind, horsepower.....	2,350					
105 Furnished to other establishments, horsepower.....	543					

¹ The average numbers of women and children employed during each month, being small, are not shown in this table.

Connecticut.	Delaware.	District of Columbia.	Florida.	Georgia.	Illinois.	Indian Territory.	Indiana.	Iowa.	Kansas.	Kentucky.	Louisiana.	
7	10	6	47	48	43	22	66	4	44	48	62	1
\$362,683	\$316,428	\$700,018	\$1,360,095	\$1,704,716	\$2,162,126	\$605,859	\$2,204,227	\$186,824	\$1,372,599	\$1,815,678	\$3,495,818	2
\$51,000	\$26,102	\$236,250	\$130,306	\$181,735	\$140,129	\$51,044	\$266,635	\$27,500	\$74,736	\$130,655	\$390,090	3
\$105,850	\$144,336	\$111,750	\$225,271	\$362,020	\$542,435	\$122,408	\$497,843	\$59,213	\$350,372	\$459,077	\$691,374	4
\$167,017	\$120,900	\$305,975	\$892,543	\$1,046,306	\$1,195,344	\$370,945	\$1,249,606	\$94,505	\$872,918	\$1,038,490	\$2,120,171	5
\$38,816	\$25,090	\$46,043	\$111,975	\$114,655	\$284,218	\$61,462	\$190,143	\$5,606	\$74,573	\$187,456	\$294,183	6
6	6	1	41	18	29	14	52		33	33	27	7
20	17	13	69	105	134	26	104	6	67	66	101	8
\$14,181	\$9,662	\$12,218	\$59,781	\$70,056	\$110,446	\$19,525	\$73,039	\$5,416	\$55,186	\$54,618	\$86,665	9
4	9	6	20	34	24	3	38	1	25	30	34	10
\$5,254	\$3,890	\$8,000	\$20,800	\$28,245	\$33,388	\$900	\$23,782	\$1,500	\$23,231	\$29,750	\$36,610	11
16	8	7	49	71	110	23	66	5	42	36	67	12
\$8,927	\$5,772	\$4,218	\$38,981	\$47,811	\$77,078	\$18,625	\$49,257	\$3,916	\$31,955	\$24,868	\$50,055	13
13	5	5	48	69	94	22	58	4	37	32	64	14
\$8,355	\$5,772	\$3,072	\$8,513	\$40,839	\$71,109	\$18,025	\$46,115	\$3,580	\$28,680	\$24,088	\$49,195	15
3		2	1	2	16	1	8	1	5	4	3	16
\$572		\$546	\$468	\$972	\$5,969	\$600	\$3,142	\$336	\$3,275	\$780	\$890	17
58	115	133	403	714	715	150	645	41	387	579	711	18
42	55	66	231	283	303	63	280	22	164	219	313	19
42	64	94	295	399	485	82	391	20	237	345	458	20
\$31,164	\$30,869	\$40,430	\$150,575	\$141,746	\$208,786	\$44,043	\$199,113	\$11,968	\$145,469	\$152,086	\$236,102	21
42	64	94	293	398	484	79	390	20	235	343	442	22
\$31,164	\$30,869	\$46,430	\$150,063	\$141,606	\$268,626	\$43,758	\$199,013	\$11,968	\$145,054	\$151,634	\$234,590	23
			1		1					1		24
			\$312		\$160					\$150	\$336	25
			1	1		3	1		2	1	12	26
			\$200	\$140		\$285	\$100		\$415	\$302	\$1,176	27
31	28	70	239	174	353	21	201	3	122	143	219	28
32	27	64	241	185	356	21	213	3	130	145	235	29
34	37	74	258	259	399	32	234	3	182	206	318	30
37	56	77	284	458	438	66	334	16	211	316	449	31
44	86	106	309	513	540	105	440	26	264	433	562	32
53	106	116	333	571	638	133	529	29	323	511	621	33
56	98	120	352	634	667	137	577	37	358	545	639	34
56	96	120	358	635	673	134	592	36	364	541	643	35
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TABLE 10.—MANUFACTURED ICE—DETAILED

		Maryland.	Mississippi.	Missouri.	New Jer- sey.	New Mex- ico.	New York.	North Carolina.
1	Number of establishments.....	27	37	53	39	7	58	32
2	Capital, total.....	\$1,688,339	\$1,265,613	\$3,317,855	\$2,748,564	\$190,088	\$5,972,164	\$860,441
3	Land.....	\$350,525	\$137,600	\$419,477	\$373,799	\$10,948	\$1,164,227	\$80,300
4	Buildings.....	\$311,661	\$295,428	\$863,897	\$506,771	\$40,566	\$1,721,849	\$142,750
5	Machinery, tools, and implements.....	\$927,678	\$729,599	\$1,838,246	\$1,530,990	\$117,390	\$2,749,524	\$541,226
6	Cash and sundries.....	\$98,475	\$102,986	\$196,235	\$337,004	\$21,184	\$336,564	\$96,165
7	Proprietors and firm members.....	15	23	30	18	5	21	13
8	Salaries of officials, clerks, etc.:—							
9	Total number.....	50	79	96	52	4	99	69
10	Total salaries.....	\$45,861	\$63,747	\$94,435	\$46,612	\$5,100	\$99,592	\$57,516
11	Officers of corporations—							
12	Number.....	19	12	37	16	3	24	25
13	Salaries.....	\$19,873	\$6,495	\$40,225	\$17,775	\$3,300	\$25,625	\$22,822
14	General superintendents, managers, clerks, etc.—							
15	Total number.....	31	67	59	36	1	75	44
16	Total salaries.....	\$25,988	\$57,252	\$54,210	\$28,837	\$1,800	\$73,967	\$34,694
17	Men—							
18	Number.....	29	66	55	31	1	71	42
19	Salaries.....	\$25,388	\$56,892	\$53,040	\$27,415	\$1,800	\$72,175	\$33,594
20	Women—							
21	Number.....	2	1	4	5	—	4	2
22	Salaries.....	\$600	\$360	\$1,170	\$1,422	—	\$1,792	\$1,100
23	Wage-earners, including pieceworkers, and total wages:							
24	Greatest number employed at any one time during the year.....	426	449	684	419	40	884	428
25	Least number employed at any one time during the year.....	203	237	301	166	23	459	186
26	Average number.....	253	274	433	268	23	603	235
27	Total wages.....	\$125,834	\$118,528	\$271,614	\$159,306	\$19,666	\$424,095	\$82,572
28	Men 16 years and over—							
29	Average number.....	248	263	433	268	23	603	235
30	Wages.....	\$125,130	\$116,922	\$271,614	\$159,306	\$19,666	\$424,095	\$82,572
31	Women 16 years and over—							
32	Average number.....	1	—	—	—	—	—	—
33	Wages.....	\$300	—	—	—	—	—	—
34	Children under 16 years—							
35	Average number.....	4	11	—	—	—	—	—
36	Wages.....	\$404	\$1,606	—	—	—	—	—
37	Average number of wage-earners, including pieceworkers, employed during each month:							
38	Men 16 years and over—							
39	January.....	132	107	204	138	7	402	112
40	February.....	130	113	214	148	7	423	113
41	March.....	136	165	263	162	15	489	148
42	April.....	246	262	360	245	20	556	208
43	May.....	319	366	532	313	22	660	355
44	June.....	359	401	608	366	29	765	374
45	July.....	376	403	634	400	35	809	384
46	August.....	377	406	647	401	37	778	383
47	September.....	365	399	596	366	35	746	327
48	October.....	250	293	511	305	28	656	194
49	November.....	158	140	376	215	23	498	117
50	December.....	128	101	251	157	18	454	105
51	Miscellaneous expenses, total.....	\$90,594	\$82,513	\$161,225	\$129,819	\$5,361	\$365,461	\$52,041
52	Rent of works.....	\$7,379	\$82	\$1,540	\$3,000	\$40	\$41,320	\$375
53	Taxes.....	\$9,802	\$15,549	\$19,571	\$15,318	\$1,921	\$31,174	\$8,006
54	Rent of offices, interest, insurance, and all other sundry expenses not hitherto included.....	\$70,813	\$66,882	\$136,052	\$109,892	\$3,400	\$292,967	\$43,660
55	Contract work.....	\$2,600	—	\$4,062	\$1,609	—	—	—
56	Materials used, aggregate cost.....	\$180,382	\$145,197	\$399,186	\$171,669	\$15,948	\$576,563	\$97,365
57	Ammonia—							
58	Total pounds.....	85,214	54,338	223,784	78,452	4,790	205,232	27,931
59	Total cost.....	\$20,263	\$11,857	\$44,054	\$17,233	\$1,505	\$51,336	\$6,876
60	Anhydrous—							
61	Pounds.....	85,214	35,288	161,371	63,632	3,790	201,551	23,731
62	Cost.....	\$20,263	\$9,982	\$40,344	\$16,155	\$1,428	\$51,142	\$6,603
63	Aqua—							
64	Pounds.....	—	19,050	62,413	14,820	1,000	3,681	4,200
65	Cost.....	—	\$1,875	\$3,710	\$1,078	\$77	\$194	\$273
66	Fuel.....	\$122,766	\$96,611	\$297,098	\$134,782	\$13,309	\$404,991	\$75,694
67	Rent of power and heat.....	—	—	—	—	—	\$34,533	\$150
68	Mill supplies.....	\$11,913	\$6,372	\$23,072	\$8,312	\$744	\$34,049	\$4,945
69	All other materials.....	\$24,260	\$24,569	\$30,740	\$10,753	\$390	\$50,724	\$9,700
70	Freight.....	\$1,180	\$5,788	\$4,222	\$589	—	\$930	—
71	Products, aggregate value.....	\$729,553	\$603,485	\$1,129,980	\$647,564	\$83,657	\$1,748,871	\$417,868
72	Ice—							
73	Total tons.....	228,541	136,368	411,818	238,172	16,337	847,935	110,414
74	Total value.....	\$728,577	\$582,465	\$1,039,128	\$618,956	\$82,357	\$1,725,653	\$417,868
75	Can ice—							
76	Tons.....	134,197	136,368	411,818	181,202	16,337	798,045	110,414
77	Value.....	\$430,566	\$582,465	\$1,039,128	\$479,441	\$82,357	\$1,624,806	\$417,868
78	Plate ice—							
79	Tons.....	94,344	—	—	56,970	—	49,890	—
80	Value.....	\$298,011	—	—	\$139,515	—	\$100,847	—
81	All other products.....	\$976	\$21,020	\$90,852	\$28,608	\$1,300	\$23,218	—
82	Power:							
83	Number of establishments reporting.....	27	35	53	39	5	58	28
84	Total horsepower.....	4,352	4,190	14,151	6,731	462	16,239	3,033
85	Owned—							
86	Engines—							
87	Steam—							
88	Number.....	46	75	137	107	5	128	44
89	Horsepower.....	4,230	4,171	13,296	6,427	377	14,271	2,976
90	Gas and gasoline—							
91	Number.....	—	—	—	—	—	—	—
92	Horsepower.....	—	—	—	—	—	—	—
93	Water wheels—							
94	Number.....	—	—	—	—	—	—	—
95	Horsepower.....	—	—	—	—	—	—	—
96	Electric motors—							
97	Number.....	13	2	31	7	—	22	5
98	Horsepower.....	72	19	605	54	—	281	42
99	Other power, horsepower.....	50	—	250	—	—	—	—
100	Rented—							
101	Electric motors—							
102	Number.....	—	—	—	—	—	4	2
103	Horsepower.....	—	—	—	—	—	112	10
104	Other kind, horsepower.....	—	—	—	—	—	1,575	—
105	Furnished to other establishments, horsepower.....	2	—	80	30	—	50	—

¹ Includes establishments distributed as follows: Idaho, 1; Massachusetts, 1; Nebraska, 1; Nevada, 2; Utah, 1; Wisconsin, 1.

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Ohio.	Oklahoma.	Oregon.	Pennsyl- vania.	Rhode Island.	South Caro- lina.	Tennessee.	Texas.	Virginia.	Washington.	West Vir- ginia.	All other states. ¹
69 \$4,495,209 \$678,449 \$977,169 \$2,374,759 \$464,832 31	22 \$735,368 \$38,065 \$173,148 \$452,061 \$72,094 9	20 \$451,249 \$53,650 \$97,942 \$241,742 \$57,915 14	109 \$9,711,731 \$1,780,898 \$2,397,285 \$4,609,058 \$924,490 57	3 \$68,400 \$700 \$6,000 \$57,000 \$4,700 2	18 \$712,346 \$77,950 \$127,449 \$417,162 \$89,785 8	37 \$1,124,789 \$134,130 \$246,650 \$640,566 \$103,443 26	125 \$5,140,487 \$520,312 \$1,025,362 \$3,228,428 \$366,385 50	48 \$1,805,126 \$174,302 \$344,750 \$1,090,500 \$195,574 43	12 \$486,025 \$127,300 \$101,396 \$207,980 \$49,349 9	30 \$1,286,955 \$133,776 \$308,412 \$735,532 \$109,235 5	7 \$236,683 \$25,400 \$78,500 \$128,000 \$4,783 3
141 \$111,197	39 \$28,097	18 \$15,365	284 \$261,955	3 \$1,400	25 \$22,507	79 \$66,624	216 \$197,063	56 \$41,083	11 \$14,160	36 \$28,095	6 \$7,900
62 \$50,599	12 \$10,080	5 \$6,100	53 \$58,189	7	7 \$10,525	27 \$26,250	52 \$49,245	22 \$15,953	2 \$1,800	17 \$15,082	2 \$1,600
79 \$60,598	27 \$14,017	13 \$9,265	231 \$203,766	3 \$1,400	18 \$11,982	52 \$40,374	164 \$147,818	34 \$25,130	9 \$12,360	19 \$13,013	4 \$6,300
65 \$55,517	25 \$17,217	10 \$8,350	209 \$192,602	2 \$1,200	18 \$11,982	47 \$38,264	161 \$146,188	34 \$25,130	9 \$12,360	18 \$12,943	4 \$6,300
14 \$5,081	2 \$800	3 \$915	22 \$11,164	1 \$200	1	5 \$2,110	3 \$1,630			1 \$70	
829 330 520 \$295,764	203 66 115 \$63,333	122 55 75 \$56,831	1,689 657 1,236 \$732,285	23 23 6 \$4,170	189 90 111 \$44,556	617 257 382 \$191,246	1,420 581 869 \$450,672	580 273 346 \$138,044	121 90 99 \$78,062	288 126 176 \$94,426	63 36 36 \$30,360
517 \$295,335	115 \$63,333	75 \$56,831	1,229 \$730,079	6 \$4,170	110 \$44,480	376 \$190,528	865 \$449,756	346 \$138,044	99 \$78,062	172 \$94,136	36 \$30,360
2 \$364			7 \$2,206			1 \$150					
1 \$65					1 \$76	5 \$568	4 \$916			4 \$290	
306 293 360 422 565 601 782 792 724 582 390 307 \$210,970 \$5,977 \$26,158 \$178,835	54 54 69 102 121 172 100 193 175 115 71 61 \$45,178 \$5,026 \$5,300 \$34,852	47 47 46 54 76 95 105 113 107 87 65 58 \$24,160 \$5,654 \$2,859 \$15,647	749 768 886 1,151 1,491 1,675 1,741 1,709 1,618 1,244 947 769 \$591,501 \$78,653 \$63,940 \$448,100	54 64 66 93 130 172 177 181 152 106 70 55 \$2,656 \$895 \$7,205 \$27,140	54 64 66 93 130 172 177 181 152 106 70 55 \$35,240 \$895 \$7,205 \$27,140	204 209 244 337 437 540 575 570 525 407 263 201 \$140,246 \$1,613 \$14,680 \$123,943	456 475 569 784 1,014 1,205 1,336 1,315 1,231 952 584 459 \$317,015 \$2,353 \$47,577 \$266,397	179 191 211 358 391 502 528 523 496 351 224 198 \$97,015 \$9,280 \$10,364 \$76,371	78 82 77 82 110 113 121 117 110 94 83 \$44,929 \$4,072 \$6,157 \$34,700	88 92 119 158 201 228 270 270 240 175 126 97 \$63,196 \$1,100 \$6,125 \$55,971	15 15 15 24 31 58 60 60 57 34 22 29 \$16,050 \$1,100 \$3,414 \$12,636
\$291,644	\$76,266	\$40,566	808 \$711,448	\$2,974	\$74,812	\$123,484	748 \$572,988	1,000 \$171,545	\$41,241	\$60,530	\$26,379
195,353 \$28,612	21,009 \$6,168	11,093 \$3,997	364,200 \$72,518	600 \$159	30,051 \$5,077	77,209 \$11,189	205,363 \$53,311	191,138 \$28,625	15,775 \$3,999	45,239 \$9,161	7,329 \$2,470
91,406 \$23,158	21,009 \$6,168	11,093 \$3,997	269,952 \$68,101	600 \$159	15,547 \$4,238</						

SALT

SALT

By CHARLES E. MUNROE, Professor of Chemistry, George Washington University, Expert Special Agent.

This report deals with the manufacture of salt either through the evaporation of brine or sea water, or by the treatment of rock salt to render it marketable for use as a condiment or preservative in food or as the raw material of other manufactures. As the establishments in which salt is manufactured are also engaged in obtaining their raw material from its sources, the industry is both a manufacturing and a mining industry, and hence occupies a place upon the border line in the scheme of classification of industries adopted in the treatment of Census statistics. There exist establishments in which the salt is not only recovered from its natural sources but is further converted into other manufactured products. Such establishments, however, are classified according to the nature of their products. The establishments classified under "salt" are those only in which salt is the final product.

Statistics of this industry have been collected from the beginning of the taking of a census of manufactures. At the census of 1880 and at each subsequent census salt has been made the subject of a special report. The endeavor has been to prepare the schedule of inquiry and to compile the tables of results in such a manner that the data for each census would be comparable with those for the preceding.

The method of measuring salt which has obtained at different times and in different localities in this country has varied considerably. In this report the terms used are pounds, bushels, and barrels. The bushel of salt weighs 56 pounds and the barrel 280 pounds net.

Table 1 presents the general statistics for the establishments engaged in the manufacture of salt at the censuses from 1850 to 1905, together with the percentage of increase for each item at each of the six periods considered.

TABLE 1. -COMPARATIVE SUMMARY, WITH PER CENT OF INCREASE: 1850 TO 1905.

	CENSUS.							PER CENT OF INCREASE.					
	1905 ¹	1900	1890	1880 ²	1870	1860	1850	1900 to 1905	1890 to 1900	1880 to 1890	1870 to 1880	1860 to 1870	1850 to 1860
Number of establishments.....	146	159	200	268	282	399	340	³ 8.2	³ 20.5	³ 25.4	³ 5.0	³ 29.3	³ 17.4
Capital.....	\$25,586,282	\$27,123,364	\$13,437,749	\$8,225,740	\$6,561,615	\$3,692,215	\$2,640,860	³ 5.7	101.8	63.4	25.4	77.7	39.8
Salaries.....	418	406	200	(⁴)	(⁴)	(⁴)	(⁴)	³ 3.0	103.0				
Wage-earners, average number.....	4,666	4,774	4,255	4,289	2,953	2,213	2,786	³ 2.5	164.3				
Total wages.....	\$2,066,399	\$1,911,140	\$1,593,442	\$1,260,023	\$1,146,910	\$371,954	\$753,360	³ 2.3	12.2	³ 0.8	45.2	33.4	³ 20.6
Men 16 years and over.....	4,371	4,337	4,055	(⁴)	(⁴)	(⁴)	(⁴)	8.1	19.9	26.5	9.9	208.3	³ 50.6
Wages.....	\$1,988,945	\$1,813,638	\$1,545,947	(⁴)	(⁴)	(⁴)	(⁴)	0.8	7.0				
Women 16 years and over.....	289	378	148	(⁴)	(⁴)	(⁴)	(⁴)	³ 28.5	155.4				
Wages.....	\$75,664	\$86,007	\$39,191	(⁴)	(⁴)	(⁴)	(⁴)	³ 12.0	119.5				
Children under 16 years.....	11	59	52	(⁴)	(⁴)	(⁴)	(⁴)	³ 89.8	13.5				
Wages.....	\$1,790	\$11,495	\$8,304	(⁴)	(⁴)	(⁴)	(⁴)	³ 84.4	38.4				
Miscellaneous expenses.....	\$1,235,579	\$760,539	\$674,183	(⁴)	(⁴)	(⁴)	(⁴)	62.5	12.8				
Cost of materials used.....	\$4,166,137	\$3,335,922	\$1,826,770	\$2,074,049	\$1,760,670	\$1,054,780	\$1,051,419	24.9	82.6	³ 11.9	17.8	66.9	0.3
Value of products.....	\$9,437,662	\$7,966,897	\$5,484,618	\$4,829,566	\$4,818,229	\$2,289,504	\$2,177,945	18.5	45.3	13.6	0.2	110.4	5.1

¹Exclusive of the statistics of 1 establishment engaged primarily in the manufacture of other products. This establishment produced 25,043 barrels of salt, valued at \$8,415.

²Exclusive of the statistics of 8 establishments reported as "salt, ground."

³Decrease.

⁴Includes proprietors and firm members, with their salaries; number only reported in 1900 and 1905, but not included in this table.

⁵Not reported separately.

⁶Not reported.

The following statement shows the amount of increase in the items of Table 1 from each census to the census of 1905, with the corresponding percentages of increase:

Comparative summary of amount and per cent of increase: 1850 to 1905.

	INCREASE.						PER CENT OF INCREASE.					
	1900 to 1905	1890 to 1905	1880 to 1905	1870 to 1905	1860 to 1905	1850 to 1905	1900 to 1905	1890 to 1905	1880 to 1905	1870 to 1905	1860 to 1905	1850 to 1905
Number of establishments.....	113	154	1122	1136	1253	1194	18.2	127.0	145.5	148.2	163.4	157.1
Capital.....	¹ \$1,537,082	\$12,148,533	\$17,360,542	\$19,024,667	\$21,894,067	\$22,945,422	15.7	90.4	211.1	289.9	593.0	868.9
Salaries officials, clerks, etc., number.....	12	218	(2)	(2)	(2)	(2)	3.0	109.0				
Salaries.....	¹ \$12,223	\$298,376	(2)	(2)	(2)	(2)	12.5	157.8				
Wage-earners, average number.....	108	411	377	1,713	2,453	1,880	12.3	9.7	8.8	58.0	110.8	67.5
Total wages.....	\$155,259	\$472,957	\$806,376	\$919,489	\$1,694,445	\$1,313,039	8.1	29.7	64.0	80.2	455.6	174.3
Men 16 years and over.....	34	316	(2)	(2)	(2)	(2)	0.8	7.8				
Wages.....	¹ \$175,307	\$442,998	(2)	(2)	(2)	(2)	9.7	28.7				
Women 16 years and over.....	89	141	(2)	(2)	(2)	(2)	123.5	95.3				
Wages.....	¹ \$10,343	\$36,473	(2)	(2)	(2)	(2)	112.0	93.1				
Children under 16 years.....	153	146	(2)	(2)	(2)	(2)	189.8	188.5				
Wages.....	¹ \$9,705	\$186,514	(2)	(2)	(2)	(2)	184.4	178.4				
Miscellaneous expenses.....	\$475,040	\$561,396	(2)	(2)	(2)	(2)	62.5	83.3				
Cost of materials used.....	\$830,215	\$2,339,367	\$2,092,088	\$2,405,467	\$3,111,357	\$3,114,718	24.9	128.1	100.9	136.6	295.0	296.2
Value of products.....	\$1,470,765	\$3,953,044	\$4,608,096	\$4,619,433	\$7,148,158	\$7,259,717	18.5	72.1	95.4	95.9	312.2	333.3

¹ Decrease.

² Not reported separately.

³ Not reported.

The wage-earners were divided as follows: For 1905, men, 93.7 per cent; women, 6.2 per cent; children, one-tenth of 1 per cent. For 1900 the proportions were 90.9 per cent for men; 7.9 per cent for women; and 1.2 per cent for children. For 1890 they were 95.3 per cent for men; 3.5 per cent for women; and 1.2 per cent for children.

The proportion which each item of expense bore to the value of the products for 1905 was—for salaries and wages, 27.1 per cent; for miscellaneous expenses, 13.1 per cent; for cost of materials used, 44.1 per cent. For 1900 the proportion for salaries and wages was 30.3 per cent; for miscellaneous expenses, 9.5 per cent; and for cost of materials used, 41.9 per cent. For 1890 salaries and wages formed 32.5 per cent; miscellaneous expenses, 12.3 per cent; and cost of materials used, 33.3 per cent.

At each census since 1860 there has been a constant decrease in the number of establishments engaged in this industry, while there has been a constant increase in the total wages paid. The value of the product has steadily increased since 1850. During the period from 1850 to 1905 establishments have decreased 194, or 57.1 per cent, while the capital has increased \$22,945,422; the wage-earners, 1,880; the wages, \$1,313,039; the cost of materials used, \$3,114,718; and the value of the products, \$7,259,717.

Number of establishments.—Table 2 shows the number of establishments at each census from 1880 to 1905, by states, arranged according to the number of their establishments in 1905.

At each of the censuses noted in this table establishments were reported by 15 states, but the states which reported have varied somewhat. At each census Michigan has ranked first and New York second in the number of establishments. California has held the third place, except in 1890. Kansas, which was twelfth in 1880, passed to the third place in 1890, the fifth in 1900, and the fourth in 1905. Ohio, which occupied the third place in 1880, was fourth in 1890 and 1900,

and fifth in 1905. Texas, which occupied the tenth place in 1880, was ninth in 1890 and 1900, and sixth in 1905. Utah, which was seventh in 1880, fourth in 1890, and sixth in 1900, was seventh in 1905. Louisiana, which was twelfth in 1880 and eleventh in 1890 and 1900, held the tenth place in 1905. These 8 states produced over 98 per cent of the salt reported in 1905. Kentucky, Virginia, and Wyoming, which have been producers in the past, did not report any salt for 1905, while Idaho reported a production for the first time at this census.

The constant decrease in the total number of establishments in the United States for the periods named and the constant increase in the total value of the products for the same periods indicate that there has been in this industry, as in many others, a greater concentration of industrial forces. The fluctuations in the relative number of establishments in the various states and territories have been due, in a measure, to the exploitation of deposits which have proved unprofitable to operate.

TABLE 2.—Number of establishments, by states and territories: 1880 to 1905.

STATE OR TERRITORY.	1905	1900	1890	1880
United States.....	146	159	200	253
Michigan.....	41	53	81	86
New York.....	34	38	50	69
California.....	26	24	9	25
Kansas.....	10	8	23	1
Ohio.....	8	10	9	25
Texas.....	7	3	2	3
Utah.....	5	5	0	10
Nevada.....	3	3	3	7
Oklahoma.....	3	4		
West Virginia.....	3	4	5	15
Louisiana.....	2	2	1	1
Idaho.....	1			
Illinois.....	1	1	1	
Massachusetts.....	1	1	1	5
Pennsylvania.....	1	1	3	16
Kentucky.....			2	3
Virginia.....		1	1	1
Wyoming.....				1

Capital.—Table 3 gives, for the censuses from 1890 to 1905, the details of the capital for the United States.

TABLE 3.—CAPITAL, WITH AMOUNT AND PER CENT OF INCREASE: 1890 TO 1905.

	CENSUS.			INCREASE.		PER CENT OF INCREASE.		
	1905	1900	1890	1900 to 1905	1890 to 1905	1900 to 1905	1890 to 1905	1890 to 1900
Total.....	\$25,586,282	\$27,123,364	\$13,437,749	¹ \$1,537,082	\$12,148,533	5.7	90.4	101.8
Land.....	8,771,232	8,494,587	4,287,784	276,645	4,483,448	3.3	104.6	98.1
Buildings.....	6,115,448	8,358,018	4,255,896	¹ 2,242,570	1,859,552	26.8	43.7	96.4
Machinery, tools, and implements.....	5,402,772	4,523,294	2,703,868	879,478	2,698,904	19.4	99.8	67.3
Cash and sundries.....	5,296,830	5,747,465	2,190,201	¹ 450,635	3,106,629	17.8	141.8	162.4

¹ Decrease.

A comparison of Table 3 with Table 1 shows that while the number of establishments has steadily decreased and the value of the land, and of the machinery, tools, and implements used in the industry has increased in both periods represented in Table 3, the other items of capital fluctuated.

The percentage which each item of capital was of the total is shown in Table 4, for 1890, 1900, and 1905.

The proportion which each of the items of capital formed of the total has fluctuated at these censuses. The fact that at each the item of land has been the largest indicates that a considerable area is required on which to conduct the operations incident to this industry.

TABLE 4.—Per cent distribution of capital: 1890 to 1905.

	1905	1900	1890
Total.....	100.0	100.0	100.0
Land.....	34.3	31.3	31.9
Buildings.....	23.9	30.8	31.7
Machinery, tools, and implements.....	21.1	16.7	20.1
Cash and sundries.....	20.7	21.2	16.3

Materials used.—Table 5 shows the kind and cost of the materials used for each census from 1880 to 1905, with the per cent of increase and per cent of total cost. In the case of many of the returns the cost for freight is included in the cost given for the separate items of materials used.

TABLE 5.—MATERIALS USED, BY KIND AND COST, WITH PER CENT OF INCREASE, AND PER CENT OF TOTAL: 1880 TO 1905.

KIND.	CENSUS.				PER CENT OF INCREASE.					PER CENT OF TOTAL COST.			
	1905	1900	1890	1880	1900 to 1905	1890 to 1905	1880 to 1905	1890 to 1900	1880 to 1890	1905	1900	1890	1880
Total cost.....	\$4,166,137	\$3,335,922	\$1,826,770	\$2,074,049	24.9	128.1	100.9	82.6	111.9	100.0	100.0	100.0	100.0
Barrels, bags, and sacks.....	1,150,327	997,503	(²)	(²)	15.3	.....	.....	.....	.....	27.6	29.9	.....	.....
Cooperage stock.....	1,176,182	775,411	(²)	(²)	51.7	.....	.....	.....	.....	28.2	23.2	.....	.....
Cloth purchased for sacks.....	38,041	64,208	(²)	(²)	140.8	.....	.....	.....	.....	0.9	1.9	.....	.....
Fuel.....	1,355,880	991,248	745,917	916,100	36.8	81.8	48.0	32.9	118.6	32.6	29.7	40.8	44.2
Rent of power and heat.....	23,296	2,111	(²)	(²)	1,003.6	.....	.....	.....	.....	0.6	0.1	.....	.....
Mill supplies.....	104,751	192,777	(²)	(²)	145.7	.....	.....	.....	.....	2.5	5.8	.....	.....
All other materials.....	220,739	189,747	1,080,853	1,157,949	16.3	179.6	180.9	182.4	16.7	5.3	5.7	59.2	55.8
Freight.....	96,921	122,917	(²)	(²)	121.1	.....	.....	.....	.....	2.3	3.7	.....	.....

¹ Decrease.² Not reported separately; included in "all other materials."

The cost of fuel constitutes the largest cost item at the census of 1905. Adding to this item, for the censuses of 1905 and 1900, the cost for rent of power and heat, the proportions shown for each census are 33.2 per cent in 1905, 29.8 per cent in 1900, 40.8 per cent in 1890, and 44.2 per cent in 1880. Several conflicting tendencies influenced the total consumption of fuel. Through inventions the evaporators employed in concentrating the brine by means of heat from fuel have been so improved that the fuel consumption per unit volume of water evaporated has markedly diminished. On the other hand, as the process of evaporating brine by means of fuel replaces evaporation by solar heat the use of fuel is increased. The quantity of fuel used and its total cost vary also with the original strength

of the brine that is evaporated and the nature of the fuel employed.

Equipment of plants.—Table 6 presents detailed statistics regarding the equipment of the establishments in the several states for 1890, 1900, and 1905.

The total number of covers or ponds in 1905 was 562, or 1.6 per cent, greater than in 1900, while it was 4,359, or 10.9 per cent, less than in 1890; the area was 61,359,561 square feet, or 55.8 per cent, greater in 1905 than in 1900, and 160,452,509 square feet, or 1,481.8 per cent, greater than in 1890. For the other devices the separate statistics were not collected prior to 1900. For the period from 1900 to 1905 each of the items shows a decrease, there being a decrease of 53 in number, or 10.2 per cent, for grainers; of 194 in number, or

73.5 per cent, for open pans; of 105 in number, or 25.5 per cent, for kettles; and of 10 in number, or 25 per cent, for vacuum pans. For these devices combined, as they were reported for 1890, there is a decrease of 362 in number, or 29.3 per cent, for 1905 as compared with 1900, and of 2,543 in number, or 74.4 per cent, for 1905 as compared with 1890. Of the total area of covers or ponds in 1905, 83.4 per cent was in California, 10.9 per cent in Utah, and 5.2 per cent in New York, these 3 states containing 99.5 per cent of the total. In 1900 the proportion in California was 56.5 per cent; Utah, 35.1 per cent; and New York, 7.4 per cent. The 3 states contained 99 per cent of the total. The changes in relative proportions are due not only to a reported increase in area of 130.2 per cent in California, and of 10 per cent in New York, but also to a reported decrease of 51.8 per cent in Utah, and slight changes in other states.

TABLE 6.—*Equipment of plants, by states and territories: 1890 to 1905.*

STATE OR TERRITORY.	Census.	Number of establishments.	COVERS OR PONDS.		Grain-ers.	Open pans.	Ket-tles.	Vacuum pans.
			Number.	Square feet.				
United States.	1905	146	35,784	171,280,921	469	70	306	30
	1900	159	35,222	109,921,360	522	264	411	40
	1890	200	40,143	10,828,412	13,418	(?)	(?)	(?)
California.	1905	26	476	142,838,510	—	1	—	—
	1900	24	474	62,062,800	—	2	—	1
	1890	9	—	—	—	—	—	—
Kansas.	1905	10	—	—	27	27	—	—
	1900	8	30	144,656	13	36	—	—
	1890	23	545	139,520	48	—	—	—
Michigan.	1905	41	3,221	537,932	259	11	2	17
	1900	53	2,009	545,300	273	17	5	19
	1890	81	2,600	104,000	477	—	—	—
Nevada.	1905	3	8	4,800	—	—	—	—
	1900	3	2	30,000	—	—	—	—
	1890	3	—	—	—	—	—	—
New York.	1905	34	31,980	8,990,782	63	21	218	5
	1900	38	32,295	8,176,948	92	43	338	9
	1890	50	36,588	10,469,692	1,926	—	—	—
Ohio.	1905	8	3	9,116	51	1	85	8
	1900	10	4	12,320	83	38	31	5
	1890	9	—	—	311	—	—	—
Oklahoma ³ .	1905	3	11	152,120	3	—	—	—
	1900	4	13	92,120	2	21	—	—
Pennsylvania ⁴ .	1890	3	—	—	22	—	—	—
Texas ⁵ .	1905	7	15	117,568	35	5	—	—
	1900	3	14	135,680	24	2	—	—
Utah.	1905	5	66	18,621,328	—	—	1	—
	1900	5	39	38,610,728	—	—	1	—
	1890	9	—	—	—	—	—	—
West Virginia.	1905	3	—	—	19	—	—	—
	1900	4	—	—	23	—	36	—
	1890	5	—	—	149	—	—	—
All other states. ⁶	1905	6	4	8,765	12	3	—	—
	1900	7	342	110,808	12	105	—	6
	1890	8	410	115,200	485	—	—	—

¹Includes kettles, boilers, pans, jacketed kettles, or vacuum pans.

²Included in grainers.

³Not reported in 1890.

⁴Included in "all other states" in 1905 and 1900.

⁵Included in "all other states" in 1890.

⁶Includes establishments distributed as follows: Idaho, 1; Illinois, 1; Louisiana, 2; Massachusetts, 1; Pennsylvania, 1.

⁷Includes establishments distributed as follows: Illinois, 1; Louisiana, 2; Massachusetts, 2; Pennsylvania, 1; Virginia, 1.

⁸Includes establishments distributed as follows: Illinois, 1; Kentucky, 2; Louisiana, 1; Massachusetts, 1; Texas, 2; Virginia, 1.

The increase in number of grainers for 1905 over 1900 was—in Kansas 14, in Texas 11, and in Oklahoma 1. There was a decrease in number in each of the other states shown separately in the table which reported grainers. There was reported for Texas an increase of 4 in number, of open pans; and for Ohio an increase of 54 in number, of kettles, and of 3 in number, of vacuum pans, for 1905 over 1900. In each of the other states reporting, with the exception of Utah, there was a decrease in the number of each of these devices.

Products.—Table 7 shows the kind, quantity, and value of the products and the price of each per unit, 1890 to 1905.

TABLE 7.—*Products, by kind, quantity, and value: 1890 to 1905.*

KIND.	1905	1900	1890
Total value.....	\$9,446,077	\$7,966,897	\$5,484,618
Salt:			
Barrels.....	¹ 17,153,615	15,187,819	10,406,860
Value.....	¹ \$9,334,998	\$7,901,836	\$5,441,303
Value per barrel.....	\$0.544	\$0.520	\$0.523
Bromine:			
Pounds.....	261,665	279,437	167,550
Value.....	\$72,584	\$64,921	\$40,395
Value per pound.....	\$0.277	\$0.232	\$0.241
All other products.....	\$38,495	\$140	\$2,920

¹Includes 25,043 barrels of salt, valued at \$8,415, made in an establishment engaged primarily in the manufacture of other products.

The quantity of salt produced for 1905 was greater by 1,965,796 barrels, or 12.9 per cent, than in 1900, and greater by 6,746,755 barrels, or 64.8 per cent, than in 1890. Its value was \$1,433,162, or 18.1 per cent, greater than in 1900, and \$3,893,695, or 71.6 per cent, greater than in 1890. The quantity of salt made in 1900 was greater by 4,780,959 barrels, or 45.9 per cent, and its value greater by \$2,460,533, or 45.2 per cent, than in 1890. The quantity of bromine produced in 1905 was 17,772 pounds, or 6.4 per cent, less, but its value was \$7,663, or 11.8 per cent, greater than in 1900. The quantity in 1905 was 94,115 pounds, or 56.2 per cent, greater, and its value was \$32,189, or 79.7 per cent, greater than in 1890. The quantity of bromine manufactured in 1900 was 111,887 pounds, or 66.8 per cent, and its value \$24,526, or 60.7 per cent, greater than in 1890. Bromine is a by-product in the salt industry.

At the census of 1900¹ it was stated that the quantity of salt reported as the production of that census year did "not include 4,520,796 barrels of salt, valued at \$1,171,948, which formed an intermediate product in the manufacture of chemicals in Michigan, New York, and Pennsylvania, and were included in the report for the chemical industry. Including this intermediate product, the total output for 1900 amounted to 19,708,615 barrels, valued at \$9,073,784." As a rule, in the establishments of the kind referred to no salt is actually produced, the salt brine being used di-

¹Twelfth Census, Manufactures, Part III, page 531.

rectly in the manufacture. Nevertheless the salt, as obtained in solution, determines the value of the brine for such use and takes the place of an equivalent quantity of manufactured salt. Since the salt in the brine, therefore, goes from the well to the market in manufactured form, though in another guise, it is properly taken into account in a statistical consideration of the salt industry. In the supplemental schedules prepared for the collection of the returns for the census of manufactures there is a category for "products manufactured and consumed," under which salt might have been entered, but this has seldom been done. The quantity of salt may be calculated with a high degree of precision from the quantity and character of the products made from it or from the quantity and composition of the brine reported. To assign a value for this salt is more difficult. It certainly

includes the value of the brine and the cost of its delivery at the point of consumption, and it may include more. At the census of 1900, as quoted above, the value per unit assigned to the salt estimated as being used in the manufacture of chemicals was 49.8 per cent of the average value of salt manufactured in the United States in that census year. At the census of 1905 the quantity of salt used is from various considerations estimated at 4,876,387 barrels, and its value at \$1,316,624. Including this intermediate product, the total output of salt at the census of 1905 was 22,030,002 barrels, having a value of \$10,651,622.

Table 8 shows the total quantity of salt reported from salt works at each census from 1850 to 1905, and also the quantity of each kind of salt manufactured and the per cent which it forms of the total at each census from 1880 to 1905.

TABLE 8.—PRODUCTION OF SALT, BY KIND AND QUANTITY, WITH PER CENT OF TOTAL: 1850 TO 1905.

KIND.	QUANTITY (BARRELS).							PER CENT OF TOTAL.			
	1905	1900	1890	1880	1870	1860	1850	1905	1900	1890	1880
Total.....	117,153,615	15,187,819	10,406,860	5,961,060	3,521,221	2,543,440	1,952,768	100.0	100.0	100.0	100.0
Rock salt.....	3,416,835	2,543,679	1,413,281	62,400	(²)	(²)	(²)	19.9	16.7	13.6	1.0
Solar salt.....	1,677,182	910,974	1,443,262	903,555	(²)	(²)	(²)	9.8	6.0	13.9	15.2
Salt made by the boiling process, total.....	12,059,598	11,733,166	7,550,317	4,995,105	(²)	(²)	(²)	70.3	77.3	72.5	83.8
Table salt.....	3,119,091	1,866,058	(²)	(²)	(²)	(²)	(²)	18.2	12.3	.....	.....
Common fine.....	6,279,336	6,866,126	(²)	(²)	(²)	(²)	(²)	36.6	45.2	.....	.....
Common coarse.....	1,878,666	2,635,282	(²)	(²)	(²)	(²)	(²)	11.0	17.4	.....	.....
Packers'.....	498,943	182,930	(²)	(²)	(²)	(²)	(²)	2.9	1.2	.....	.....
Milling.....	106,839	96,178	(²)	(²)	(²)	(²)	(²)	0.6	0.6	.....	.....
Other grades.....	176,723	86,592	(²)	(²)	(²)	(²)	(²)	1.0	0.6	.....	.....

¹ Includes 25,043 barrels of salt made in an establishment engaged primarily in the manufacture of other products.

² Not reported separately.

The total quantity of salt produced at salt works has increased steadily since 1850. The percentages of increase shown in 1905 over preceding censuses were 12.9 per cent over 1900; 64.8 per cent over 1890; 187.8 per cent over 1880; 387.1 per cent over 1870; 574.4 per cent over 1860; and 778.4 per cent over 1850.

From the returns received at the census of 1900 it was believed that the production of solar salt was decreasing. The returns for 1905 show that such is not the case, for the amount reported at the census of 1905 is not only greater than that reported at the census of 1900, but it is greater than that reported at any of the censuses at which the different kinds of salt have been separately reported. There has been, in fact, an increase in the quantity of each kind of salt reported in the table, it being for rock salt, at the census of 1905, 873,156 barrels, or 34.3 per cent, greater than in 1900; 2,003,554 barrels, or 141.8 per cent, greater than in 1890; and 3,354,435 barrels, or 5,375.7 per cent, greater than in 1880. The quantity of solar salt reported at the census of 1905 was 766,208 barrels, or 84.1 per cent, greater than in 1900; 233,920 barrels, or 16.2 per cent, greater than in 1890; and

773,627 barrels, or 85.6 per cent, greater than in 1880. The quantity of salt made by the boiling process reported at the census of 1905 was 326,432 barrels, or 2.8 per cent, greater than in 1900; 4,509,281 barrels, or 59.7 per cent, greater than in 1890; and 7,064,493 barrels, or 141.4 per cent, greater than in 1880.

Comparison of the grades of salt reported at the censuses of 1900 and 1905 shows in 1905 for table salt an increase of 1,253,033 barrels, or 67.1 per cent; for common fine, a decrease of 586,790 barrels, or 8.5 per cent; for common coarse, a decrease of 756,616 barrels, or 28.7 per cent; for packers', an increase of 316,013 barrels, or 172.8 per cent; for milling, an increase of 10,661 barrels, or 11.1 per cent; and for all other grades, an increase of 90,131 barrels, or 104.1 per cent. In the report for the census of 1900 it was pointed out that in the decade following the census of 1890 manufacturers had made great progress in the production of the finer grades of salt, particularly those for use for the table and dairy and in the preservation of fish and meats. The analysis of the returns for the census of 1905 shows that this condition has continued and is most marked.

Table 9 shows the quantity of salt manufactured in each state, the per cent which the product of each state forms of the total, at the censuses of 1890 to 1905.

TABLE 9.—PRODUCTION OF SALT, BY STATES AND TERRITORIES, WITH PER CENT OF TOTAL: 1890 TO 1905.

STATE OR TERRITORY.	QUANTITY (BARRELS).			PER CENT OF TOTAL.		
	1905	1900	1890	1905	1900	1890
United States.....	¹ 17,153,615	15,187,819	10,406,860	100.0	100.0	100.0
New York.....	5,494,869	4,894,852	3,226,250	32.0	32.2	31.0
Michigan.....	4,345,213	5,206,510	3,729,110	25.3	34.3	35.8
Kansas.....	2,148,152	1,645,350	1,140,799	12.5	10.8	11.0
Ohio.....	1,538,936	1,460,516	409,514	9.0	9.6	3.9
Utah.....	1,088,374	235,671	626,429	6.3	1.5	6.0
California.....	939,800	640,420	255,328	5.5	4.2	2.5
Texas.....	450,027	312,436	(²)	2.6	2.1	—
West Virginia.....	130,360	221,534	285,461	0.8	1.5	2.7
Nevada.....	26,285	7,671	25,250	0.2	0.1	0.2
Oklahoma.....	11,428	4,856	—	0.1	(³)	—
Pennsylvania.....	(²)	(²)	172,400	—	—	1.7
All other states.....	⁴ 980,171	⁵ 558,003	⁶ 536,319	5.7	3.7	5.2

¹ Includes 25,043 barrels of salt made in an establishment engaged primarily in the manufacture of other products.

² Included in "all other states."

³ Less than one-tenth of 1 per cent.

⁴ Includes states as follows: Idaho, Illinois, Louisiana, Massachusetts, Pennsylvania.

⁵ Includes states as follows: Illinois, Louisiana, Massachusetts, Pennsylvania, Virginia.

⁶ Includes states as follows: Illinois, Kentucky, Louisiana, Massachusetts, Texas, Virginia.

At each of the censuses noted in the table New York, Michigan, and Kansas have stood at the head of the list of salt producing states. Of the total production of the United States these 3 produced 77.8 per cent in 1890, 77.3 per cent in 1900, and 69.9 per cent for 1905. Michigan ranked first and New York second in 1890 and 1900, but at the present census this order is reversed. Each state named in the table except Michigan and West Virginia shows an increased production for 1905 over 1900. The greatest increase was shown by Utah, where it amounted to 852,703 barrels, or 361.8 per cent. The decrease in Michigan was 861,297 barrels, or 16.5 per cent.

In addition to the business zeal and intelligence of the manufacturers many causes have operated to bring about these changes in the relative magnitude of the industry in the various states and territories. Among these may be enumerated the discovery of better located or richer deposits of salt, the utilization of waste fuel, improvements in facilities for transportation and accessibility to markets, changes in tariff or tax or royalty, with legislation, and the combination of interests to prevent excessive production and to limit manufacture to those localities where it may be most economically carried on.

Chatard has treated of certain of these conditions very fully in the following statement:¹

The economical application and thorough utilization of heat is the basis of the salt industry, and the value of any given process depends upon its efficiency in this respect, while the cost of the fuel required to make a bushel of salt from the brine of a district is the determining factor in considering the ability of the region to hold its own in business competition. We shall be aided in the discussion of this question if, before examining the various processes in use, we compare from this point of view the brines of a few typical localities.

¹ United States Geological Survey. Seventh Annual Report, 1885-86; "Salt Making Processes," pages 504 and 505.

In the following table the average salt contents is given, the amount of coal required being taken from Englehardt's table:

REGION.	Salt in brine (per cent).	Coal for one bushel of salt (pounds).
Warsaw, N. Y.....	25.0	28
Syracuse, N. Y.....	18.5	41
Saginaw, Mich.....	17.5	44
Pomeroy, Ohio.....	7.5	112

The concentrated brine of Warsaw, therefore, requires the least coal, the Pomeroy brine the most; but the cost of fuel at Syracuse is greater than at Warsaw and much greater than at Pomeroy, where the salt works are situated at the entrances of the mines and burn the unmerchantable slack and top coal, while Saginaw, consuming the offal of the lumber mills, utilizes a material otherwise absolutely worse than useless. For this reason the competition of Saginaw overshadows all other regions. The sawdust and offal produced by the great lumber interests, though utilized as far as possible for other purposes, remain in enormous quantities, and if not burned must be removed at considerable expense. Hence it is a positive economy to manufacture salt, even should the price obtained for the product barely cover the cost of manufacture. The salt industry is, therefore, here closely connected with the lumber interest, the exhaust steam from the mills being utilized in grainers, which are heated by direct steam when the mills are not running, while the pan blocks are also fired with the offal. Without this extremely cheap fuel Saginaw would have great disadvantages as compared with other sections; with it, the market for its product is simply regulated by the cost of transportation. Salt making is there but a side issue; the offal must be got rid of, and if the price received but covers the cost the mill owner is content and still has in his favor the amount it would cost him otherwise to get rid of the waste. It is therefore evident that, so long as the lumber of that section holds out, Michigan will continue to control the market, for her brine supply is abundant and the salt must be made and sold, even if no profit is realized. The Salt Association of Michigan, managed with great skill and energy, is constantly extending its field of operation, and while the introduction of its product into new markets may, for a time, be attended by no profit, and even perhaps by a slight loss, yet the general result is satisfactory to those interested.

No change in the tariff can affect this position in relation to the other regions. Any rise in price consequent on an increase of the duty on foreign salt would but give the Michigan Association the means to pay transportation charges to more distant points than it has hitherto reached and thus widen its sphere of operations, while, with salt on the free list, Saginaw must suffer less than any other section.

The position of Syracuse in relation to the strength of its brine and the cost of its fuel is less satisfactory than that of any of the other districts, and the results of outside competition and conse-

quent low prices realized are shown by the long lines of idle salt blocks, with their tall chimneys standing as monuments of a departing industry.

Supply and consumption.—Table 10 sets forth the exports and imports of salt, the domestic production, total quantity available, quantity available for domestic consumption, net imports, and per cent of net imports to consumption for the census years 1880 to 1905.

TABLE 10.—COMPARATIVE SUMMARY—DOMESTIC PRODUCTION, IMPORTS,¹ EXPORTS,¹ AND CONSUMPTION: 1880 TO 1905.

	QUANTITY (BARRELS).				PER CENT OF INCREASE.				
	1905	1900	1890	1880	1900 to 1905	1890 to 1905	1880 to 1905	1890 to 1900	1880 to 1890
Total quantity available for all purposes.....	² 23,283,781	³ 21,123,480	12,410,999	9,608,627	10.2	87.6	142.3	70.2	29.2
Domestic production.....	² 22,030,002	³ 19,708,615	10,406,860	5,961,060	11.8	111.7	269.6	89.4	74.6
In warehouses at beginning of year.....	58,812	34,940	196,854	204,814	68.3	470.1	471.3	482.3	43.9
Imports.....	1,194,967	1,379,925	1,807,285	3,442,753	413.4	433.9	463.3	423.6	447.5
Exported or left in warehouse.....	179,082	171,319	237,553	225,475	4.5	424.6	420.6	427.9	5.4
Exports (domestic).....	99,743	90,001	15,292	4,436	10.8	552.3	2,148.5	488.5	244.7
Exports (foreign).....	7,462	18,629	12,588	23,680	459.9	440.7	468.5	44.0	446.8
In warehouses at end of year.....	71,877	62,689	209,673	197,359	14.7	465.7	463.6	470.1	6.2
Available for domestic consumption.....	23,104,699	20,952,161	12,173,446	9,383,152	10.3	89.8	146.2	72.1	29.7
Net imports.....	1,187,505	1,361,296	1,794,697	3,419,073	412.8	433.8	465.3	424.2	447.5
Percent of net imports to consumption.....	5.1	6.5	14.7	36.4	421.5	465.3	486.0	455.8	459.6

¹ Bureau of Statistics, Department of Commerce and Labor, "Commerce and Navigation of the United States." For 1905 the imports and exports represent the calendar year 1904; for 1900, the calendar year 1899; for 1890 and 1880, the fiscal years ending June 30.

² Includes 4,876,357 barrels used in chemical manufactures in the form of brine and not first separated as salt.

³ Includes 4,520,796 barrels used in chemical manufactures in the form of brine and not first separated as salt.

⁴ Decrease.

The decrease in imports has been constant, the amount in 1905 being 184,958 barrels less than in 1900; 612,318 barrels less than in 1890; and 2,247,786 barrels less than in 1880. The per cent of net imports to consumption has fallen from 36.4 per cent in 1880 to 5.1 per cent in 1905. At the same time the domestic exports have increased markedly, the amount for 1905 being 9,742 barrels greater than in 1900; 84,451 barrels greater than for 1890; and 95,307 barrels greater than in 1880. In view of the prolonged contest in our seaboard ports between the imported salt of foreign manufacture and the domestic product, these statistics are interesting as showing conditions encouraging to the domestic industry. At the same time the net imports still exceed the domestic exports by 1,087,762 barrels.

The per capita consumption of salt for each census year is most conveniently shown in pounds and is usually so given. Reduced to pounds the domestic consumption of salt shown in Table 10 was for 1880, 2,627,282,560 pounds; for 1890, 3,408,564,880 pounds; for 1900, 4,600,782,200 pounds; and for 1905, 5,103,927,360 pounds. The population of continental United States and Alaska was 50,189,209 as enumerated at the census of 1880; 62,979,766 in 1890, and 76,058,167 in 1900. No census of population was taken in 1904. The estimated population for that year was 81,338,064. In using these statistics it is to be remembered that the census year for population does not coincide with the census year for manufactures. The census of popula-

tion records existing conditions at the given date, whereas the census of manufactures records operations completed at or near the date given. On the basis of these figures the per capita consumption for 1880 was 52.3 pounds; for 1890, 54.1 pounds; for 1900, 60.5 pounds; and for 1905, 62.7 pounds. This calculation does not take into account the salt drawn from natural sources and used directly in the manufacture of other products. Including this, the total consumption was 5,866,605,080 pounds for 1900 and 6,469,315,720 pounds for 1905; while the per capita consumption for these dates was 77.1 and 79.5 pounds, respectively.

Table 11 gives detailed statistics of the salt industry, by states and territories, as reported at the census of 1905. The data for power in this table shows that the total horsepower for establishments classified under "salt" in 1905 was 19,902. A comparison with the figures for 1900 shows a decrease of 4,158 horsepower, or 17.3 per cent; the decrease in steam horsepower was 4,935, or 21.4 per cent; the gas and gasoline horsepower increased 257 horsepower, or 141.2 per cent; and the electric power, owned and rented, 469, or 240.5 per cent. Of the total horsepower for 1905, steam horsepower was 91.3 per cent; electric power, 3.3 per cent; and gas and gasoline power, 2.2 per cent. In 1900 steampower was 96 per cent; electric power, eight-tenths of 1 per cent; and gas and gasoline power, eight-tenths of 1 per cent of the total horsepower.

TABLE 11.—SALT—DETAILED SUMMARY,

	United States.	California.	Kansas.	Michigan.
1 Number of establishments.....	146	26	10	41
2 Capital, total.....	\$25,586,282	\$1,276,854	\$1,635,963	\$3,538,149
3 Land.....	\$8,771,232	\$782,910	\$161,698	\$427,919
4 Buildings.....	\$6,115,448	\$148,970	\$463,007	\$864,662
5 Machinery, tools, and implements.....	\$5,402,772	\$130,805	\$390,921	\$1,268,893
6 Cash and sundries.....	\$5,296,830	\$214,169	\$620,337	\$976,675
7 Proprietors and firm members.....	87	25	2	22
8 Salaried officials, clerks, etc.:.....				
9 Total number.....	418	38	38	80
10 Total salaries.....	\$487,425	\$33,540	\$44,647	\$92,069
11 Officers of corporations—				
12 Number.....	86	3	6	13
13 Salaries.....	\$159,747	\$1,020	\$12,600	\$19,250
14 General superintendents, managers, clerks, etc.—				
15 Total number.....	332	35	32	67
16 Total salaries.....	\$327,678	\$32,520	\$32,047	\$72,819
17 Men.....				
18 Number.....	301	34	30	63
19 Salaries.....	\$311,658	\$32,505	\$30,967	\$70,731
20 Women.....				
21 Number.....	31	1	2	4
22 Salaries.....	\$16,020	\$15	\$1,080	\$2,088
23 Wage-earners, including pieceworkers, and total wages:				
24 Greatest number employed at any one time during the year.....	6,524	575	675	2,034
25 Least number employed at any one time during the year.....	3,825	254	425	974
26 Average number.....	4,666	313	526	1,388
27 Total wages.....	\$2,066,399	\$138,398	\$230,332	\$626,026
28 Men 16 years and over—				
29 Average number.....	4,371	310	501	1,343
30 Wages.....	\$1,988,945	\$137,618	\$223,919	\$614,934
31 Women 16 years and over—				
32 Average number.....	289	3	25	39
33 Wages.....	\$75,664	\$780	\$6,413	\$9,302
34 Children under 16 years—				
35 Average number.....	6			6
36 Wages.....	\$1,790			\$1,790
37 Average number of wage-earners, including pieceworkers, employed during each month:				
38 Men 16 years and over—				
39 January.....	3,959	205	551	1,093
40 February.....	3,762	201	493	1,047
41 March.....	3,968	202	430	1,148
42 April.....	4,128	244	444	1,365
43 May.....	4,384	307	446	1,560
44 June.....	4,551	360	477	1,562
45 July.....	4,697	402	499	1,501
46 August.....	4,863	412	522	1,548
47 September.....	4,819	438	536	1,385
48 October.....	4,916	447	546	1,457
49 November.....	4,454	295	535	1,319
50 December.....	3,951	207	533	1,131
51 Women 16 years and over—				
52 January.....	290	3	31	34
53 February.....	261	3	29	26
54 March.....	274	3	28	27
55 April.....	269	3	26	22
56 May.....	268	3	19	31
57 June.....	270	3	21	30
58 July.....	285	3	21	29
59 August.....	277	3	23	26
60 September.....	308	3	27	47
61 October.....	324	3	26	70
62 November.....	340	3	25	81
63 December.....	302	3	24	45
64 Children under 16 years—				
65 January.....	4			4
66 February.....	7			7
67 March.....	7			7
68 April.....	13			13
69 July.....	10			10
70 August.....	9			9
71 September.....	9			9
72 October.....	7			7
73 November.....	5			5
74 December.....	1			1
75 Miscellaneous expenses, total.....	\$1,235,579	\$53,781	\$197,437	\$259,856
76 Rent of works.....	\$21,553	\$4,850		\$3,825
77 Taxes.....	\$93,859	\$3,531	\$6,017	\$46,935
78 Rent of offices, interest, insurance, and all other sundry expenses not hitherto included.....	\$1,093,854	\$45,400	\$191,420	\$198,675
79 Contract work.....	\$26,313			\$10,420
80 Materials used, total cost.....	\$4,166,137	\$119,739	\$533,543	\$1,190,951
81 Barrels, bags, and sacks, purchased as such.....	\$1,150,327	\$87,264	\$102,963	\$101,687
82 Cooperage stock, purchased.....	\$1,176,182	\$1,800	\$135,812	\$653,554
83 Cloth, purchased for sacks.....	\$38,041		\$2,500	\$12,709
84 Fuel.....	\$1,355,880	\$22,528	\$253,846	\$293,093
85 Rent of power and heat.....	\$23,296	\$417		\$6,399
86 Mill supplies.....	\$104,751	\$1,673	\$9,354	\$38,282
87 All other materials, including cartons, etc.....	\$220,739	\$6,057	\$27,118	\$44,975
88 Freight.....	\$96,921		\$1,950	\$40,252
89 Products, total value.....	\$9,437,662	\$428,632	\$1,123,114	\$2,404,717
90 Salt (including value of packages)—				
91 Barrels.....	17,128,572	939,800	2,123,109	4,345,213
92 Value.....	\$9,326,583	\$428,632	\$1,094,446	\$2,400,773
93 Bromine:				
94 Pounds.....	261,665		280	8,587
95 Value.....	\$72,584		\$168	\$3,944
96 All other products.....	\$38,495		\$28,500	
97 Value of packages included above.....	\$2,370,849	\$89,064	\$284,375	\$731,573
98 Grade of salt, total number of barrels.....	17,128,572	939,800	2,123,109	4,345,213
99 Table and dairy.....	3,119,091	295,220	92,884	317,551
100 Common fine.....	6,254,293	5,714	912,517	2,991,758
101 Common coarse.....	1,878,666	21,857	90,000	831,775
102 Packers'.....	498,943	7,143	35,830	148,218
103 Coarse solar.....	1,677,182	515,745		24,829
104 Rock salt mined.....	3,416,835		991,878	
105 Milling.....	106,839			
106 Other grades.....	176,723	94,121		31,082

¹ Includes establishments distributed as follows: Idaho, 1; Illinois, 1; Louisiana, 2; Massachusetts, 1; Pennsylvania, 1.

BY STATES AND TERRITORIES: 1905.

Nevada.	New York.	Ohio.	Oklahoma.	Texas.	Utah.	West Virginia.	All other states. ¹	
3	34	8	3	7	5	3	11	1
\$51,520	\$15,322,152	\$1,241,957	\$57,337	\$331,061	\$612,679	\$110,800	\$1,407,810	2
\$7,500	\$6,471,811	\$46,847	\$19,330	\$50,500	\$346,210	\$25,800	\$430,707	3
\$10,500	\$3,611,689	\$455,500	\$15,450	\$111,000	\$90,540	\$22,000	\$322,130	4
\$27,020	\$2,457,468	\$431,000	\$20,949	\$94,500	\$66,085	\$28,000	\$487,131	5
\$6,500	\$2,781,184	\$308,610	\$1,608	\$75,061	\$109,844	\$35,000	\$167,842	6
3	21	1	2	2	11	1	2	7
11	133	52	3	19	14	10	29	8
\$3,000	\$172,472	\$52,597	\$1,677	\$19,028	\$18,860	\$10,600	\$38,935	9
2	25	15	2	5	5	2	8	10
\$3,000	\$61,520	\$25,070	\$867	\$7,500	\$12,300	\$1,800	\$14,820	11
	108	37	1	14	11	8	21	12
	\$110,952	\$27,527	\$810	\$11,528	\$6,560	\$8,800	\$24,115	13
	96	28	1	13	8	8	20	14
	\$105,327	\$22,415	\$810	\$10,628	\$6,080	\$8,800	\$23,395	15
	12	11		1	1		1	16
	\$5,625	\$5,112		\$900	\$480		\$720	17
20	1,700	711	22	256	170	93	268	18
10	1,283	438	4	124	47	67	199	19
14	1,373	539	10	172	108	80	183	20
\$9,741	\$585,522	\$236,267	\$6,635	\$73,929	\$43,927	\$29,466	\$86,156	21
14	1,234	467	10	162	67	80	183	22
\$9,741	\$550,097	\$214,282	\$6,635	\$72,335	\$43,762	\$29,466	\$86,156	23
	139	72		10	1			24
	\$35,425	\$21,985		\$1,594	\$165			25
								26
								27
14	1,063	537		167	44	79	206	28
14	1,020	470		187	43	74	208	29
14	1,210	485	5	148	42	81	208	30
12	1,265	388	8	127	42	73	160	31
12	1,287	365	17	107	42	77	164	32
14	1,258	397	14	163	44	84	178	33
15	1,364	438	16	144	49	86	183	34
16	1,377	470	16	195	49	86	172	35
15	1,363	502	10	193	122	82	173	36
14	1,338	515	10	182	151	80	176	37
14	1,192	539	10	175	132	81	162	38
14	1,071	498	14	156	44	77	206	39
	137	76		8	1			40
	135	59		8	1			41
	134	72		9	1			42
	138	71		8	1			43
	136	70		8	1			44
	138	68		9	1			45
	141	81		9	1			46
	134	80		10	1			47
	139	79		12	1			48
	144	69		11	1			49
	147	70		13	1			50
	145	69		15	1			51
								52
								53
								54
								55
								56
								57
								58
								59
								60
								61
								62
								63
\$1,935	\$487,704	\$102,203	\$1,298	\$34,501	\$22,952	\$3,200	\$70,713	64
\$660	\$23,295	\$3,948	\$45	\$2,378			\$10,000	65
\$1,275	\$450,268	\$97,755	\$776	\$1,797	\$1,389	\$1,450	\$4,792	66
	\$14,141		\$477	\$29,051	\$21,563	\$1,750	\$55,921	67
\$3,175	\$1,185,816	\$662,547	\$4,677	\$1,275				68
\$2,480	\$442,344	\$229,732	\$512	\$194,823	\$51,362	\$64,770	\$154,734	69
	\$204,559	\$112,364		\$72,964	\$40,782	\$150	\$69,449	70
		\$16,832		\$18,005		\$28,420	\$21,668	71
		\$165,184	\$4,055	\$92,365	\$500	\$5,500		72
\$1000	\$449,460	\$16,000			\$5,233	\$27,700	\$41,816	73
	\$480	\$24,632	\$100	\$11,029	\$982	\$3,000	\$6,304	74
\$95	\$9,300	\$45,169	\$10	\$460	\$1,780		\$15,497	75
	\$79,673	\$52,634			\$2,085			76
\$30,000	\$3,167,279	\$1,167,546	\$5,498	\$351,050	\$236,997	\$115,732	\$407,097	77
26,285	5,494,869	1,538,936	11,428	450,027	1,088,374	130,360	980,171	79
\$30,000	\$3,166,126	\$1,147,712	\$5,498	\$351,050	\$236,997	\$94,252	\$371,097	80
		73,098				74,700	105,000	81
		\$15,992				\$16,480	\$36,000	82
	\$1,153	\$3,842				\$5,000		83
\$2,480	\$680,982	\$369,487	\$512	\$42,499	\$41,282	\$34,920	\$93,675	84
26,285	5,494,869	1,538,936	11,428	450,027	1,088,374	130,360	980,171	85
13,215	1,241,223	510,173	100	62,033	481,585	5,000	100,107	86
3,000	1,202,940	596,998	350	341,639	49,017	125,360	25,000	87
3,785	290,011	48,254	8,528	13,000	28		571,428	88
2,143	101,609	204,000						89
	487,116	90,000	450	29,828	527,414		1,800	90
2,000	2,141,371						281,586	91
2,142		85,717			18,980			92
	30,599	3,794	2,000	3,527	11,350		250	93

TABLE 11.—SALT—DETAILED SUMMARY,

		United States.	California.	Kansas.	Michigan.
	Equipment of plants:				
	Covers or ponds—				
94	Number.....	35,784	476		3,221
95	Area in square feet.....	171,280,921	142,838,510		537,932
96	Kettles, number.....	306			2
97	Grainers, number.....	469		27	259
98	Open pans, number.....	70	1	27	11
99	Vacuum pans, number.....	30			17
	Power:				
100	Number of establishments reporting.....	115	14	10	31
101	Total horsepower.....	19,902	758	2,321	6,206
	Owned—				
	Engines—				
	Steam—				
102	Number.....	316	14	29	83
103	Horsepower.....	18,169	500	2,264	6,017
	Gas and gasoline—				
104	Number.....	30	16	2	
105	Horsepower.....	439	209	50	
	Water wheels—				
106	Number.....	2			
107	Horsepower.....	33			
	Electric motors—				
108	Number.....	19	1	2	6
109	Horsepower.....	468	2	7	115
110	Other power, horsepower.....	387	32		
	Rented—				
	Electric motors—				
111	Number.....	18	2		11
112	Horsepower.....	196	15		74
113	Other kind, horsepower.....	210			
114	Furnished to other establishments, horsepower.....	150			

BY STATES AND TERRITORIES: 1905—Continued.

Nevada.	New York.	Ohio.	Oklahoma.	Texas.	Utah.	West Virginia.	All other states.	
8	31,980	3	11	15	60		4	94
4,800	8,990,782	9,116	132,120	117,568	18,621,328		8,765	95
	218	85			1			96
	63	51	3	35		19	12	97
	21	1		6			3	98
	5	8						99
2	27	8	1	7	3	3	4	100
90	5,073	1,796	18	497	188	725	2,230	101
	106	38	2	7	1	22	14	102
	4,768	1,280	10	380	150	680	2,120	103
5			1	1	1	2	1	104
80	3		5	7	30	45	10	105
	1				1			106
	25				8			107
	1	2	1				6	108
	150	91	3				100	109
	20	225		110				110
	5							111
	107							112
10		200						113
	150							114

HISTORICAL AND DESCRIPTIVE.

Salt, more precisely styled "common salt," is known in chemistry as sodium chloride and in mineralogy as halite. It occurs in nature in rock masses, known as rock salt, which frequently are of considerable magnitude. Deposits notable for their size exist in Galicia, Austria; Cardona, Spain; Stassfurt, Germany; Punjab, India; Cheshire, England; Carrickfergus, Ireland; Goderich, Canada; and in Louisiana, Michigan, New York, Kansas, and elsewhere in the United States. The deposit in Austria has been traced along the base of the Carpathian mountains for some 250 miles. This deposit is known to have been open for mining at Wieliczka, Galicia, since the early part of the twelfth century, and it is probable that operations were begun at this point at a much earlier date. The deposit in Kansas is said to be 150 miles in length and 6 miles in width, and that at Jefferson Island, La., is certainly 2,000 feet in thickness, and may be thicker. Salt also occurs disseminated through the soil, and in dry regions as an efflorescence or incrustation upon the surface, as at Salton, California.

Where pure, salt is a colorless, transparent solid. It crystallizes easily into masses which possess a vitreous luster. When powdered or in very fine crystals it is white, like snow. Very frequently rock salt is found colored, sometimes azure blue, more frequently red, and at times other colors, according to the foreign bodies present in it. The substances most commonly occurring with salt are calcium chloride and sulphate, magnesium chloride and sulphate, potassium chloride and sulphate, sodium sulphate, iron compounds, minute quantities of bromides and iodides, clay, bituminous matter, and infusoriae; the quantities and kinds of foreign bodies differ with the deposits. Salt is easily soluble in water. One hundred parts of water at 60° F. (15.5° C.) dissolve 35.9 parts of salt, forming a saturated solution which contains 26.47 per cent of salt and has a specific gravity of 1.2055. The solubility of salt in water increases but little with an increase in temperature.

Sodium chloride is constantly being formed through chemical changes occurring in the mineral constituents of the earth's crust. Owing to physiological processes salt is constantly being eliminated by living animals, and with their death and decay a still larger quantity is yielded. The wind, blowing across bodies of salt water, carries salt laden air overland, where the precipitating moisture bears it to the ground. This meteoric water dissolves additional soluble substances from the soil, but, meeting with argillaceous matter, the compounds which serve as plant food are precipitated out, while the common salt and the lime and magnesium compounds pass on to the streams and rivers and eventually to the seas and oceans, where these salts accumulate. In some cases salt bearing waters flow into landlocked depressions and form bodies like the

Great Salt Lake of Utah. If conditions such as a high natural temperature, constant winds, a limited rainfall, and the absence of fresh water feeders obtain at these localities, the saline water in such lakes or in landlocked bodies of sea water may become so concentrated that the common salt and its associated compounds are precipitated out, forming in time large deposits and impregnating and incrusting the soil. This has happened about the lake at Salton and elsewhere. The most complete and detailed study of a salt deposit yet made is undoubtedly that of the famous Stassfurt deposit by Van't Hoff and his pupils, and the physicochemical results obtained ought to have much value as applied to the salt manufacture.

In geologic time accumulations of precipitated salts, like those described, have been buried beneath the earth and formed into rock masses. Eventually subterranean streams of water have encountered them and becoming, through solution, highly charged with salt, have issued at the surface as salt springs, or salt licks, which are also known as "salines." The meadow land about such springs or the intermittently overflowed land adjoining the ocean, seas, or salt lakes may, if the situation be favorable, become more or less impregnated with salt and form salt marshes. From all these sources—the oceans, the seas, the salt lakes, the salt marshes, the salt encrusted deserts, the rock deposits and the salt springs—man has gathered salt in the conduct of the industry. When ocean or sea water is used, a site for operation is selected on the shore as remote as possible from streams, so as to obtain the most highly saturated water. When salt springs are used as a source, an increased flow is secured by sinking wells to the subterranean stream. When rock salt deposits are located beneath the surface of the earth, they are frequently mined by sinking wells through which to admit fresh water, which, after becoming saturated, so as to form brine, rises, or is pumped, to the surface again. In many instances these deposits are mined, as other mineral deposits are, by sinking shafts, driving galleries, and blasting out or breaking down with explosives.

Salt is essential to the maintenance of animal life, and consequently the gathering of salt is one of the oldest of industries. Ancient literature shows that salt has long been highly prized, being used as a votive and sacrificial offering in religious ceremonies. The possession of natural sources of salt has even been made the object of war. In the Civil War repeated efforts, some of which were successful, were made to destroy the salt works of the South. It is claimed that the first roads were built to accommodate the traffic in salt. Venice is said to have owed her commercial supremacy in part to her control of the salt trade of southern Europe, and Liverpool has benefited largely by her considerable control of the trade in modern

times. In many countries the salt industry has been a government monopoly, and proved an important source of revenue.

The manufacture of salt followed close upon the settlement of this country by Europeans. Virginia had salt works at Cape Charles before 1620, and in 1633 exported salt to Massachusetts. What appears to have been the first attempt to manufacture salt in New England was made at Cape Ann in 1624, but it was not successful. During the Revolutionary War much salt was made by boiling sea water, and after its close an extensive system of salt making by solar evaporation grew up around New Bedford and Cape Cod, Mass. Lines of vats with movable roofs were constructed, connected with windmills by which the sea water was pumped into the vats. In 1830 about 600,000 bushels of salt were manufactured by solar evaporation in Massachusetts, and a still larger quantity in Maine. In 1832 the county of Barnstable, Mass., alone had 1,425,000 feet of vats, producing 358,250 bushels, but in 1834 the reduction in the tariff and the consequent cheap supplies of foreign salt, combined with cheap supplies from the rich brines in Onondaga county, N. Y., to render their operation unprofitable. Salt has been made from sea water in nearly every Atlantic state and in California at some period in our history. Its manufacture was undertaken in South Carolina in 1689 by Nathaniel Johnson, and in 1725 the legislature passed two acts for the encouragement of salt making. During the Revolutionary War many small works were erected in New Jersey and Delaware, which were repeatedly destroyed by the British. In 1812 salt was made in the flats back of the beaches in Cape May county, N. J., by digging holes in the sand and allowing the brine to drain in. This became so concentrated by natural evaporation that a barrel of it when further evaporated in kettles would yield a bushel of salt. The first production reported in Florida was for 1840, and in 1857 it was estimated that there was 100,000 bushels made, mostly at Key West. The industry began in California in 1848 or 1849 with the gathering of solar salt from the natural reservoirs along San Francisco bay. In 1867 salt works were erected at San Rafael, in Marin county, on the northern side of the bay, and later in Alameda, San Diego, and Los Angeles counties, but the industry has now become confined practically to Alameda county. The advantages derived from the situation of this county on the southeast side of San Francisco bay enable the manufacturers there to produce salt from a weak brine, which competes successfully, both in quality and price, with Liverpool salt imported in ballast. Briefly stated, these advantages are: First, a long dry season of six to eight months duration, during which little or no rain falls, whereby the expense, trouble, and loss of time incurred by eastern manufacturers in covering their brines in wet weather is avoided; second, a constant

wind that furnishes power for moving the brines and promotes evaporation; and third, the wind, coming as it does from the ocean, brings no dust to render the salt impure.

At the censuses from 1810 up to 1870 as many as 26 states and territories had been returned as producers of salt. At the census of 1810 Virginia ranked first in the value of salt produced, reported as \$704,000, while Kentucky came second with a value of \$324,870. At the census of 1820 New York took the first place, and this it has held at every subsequent census except those of 1880 and 1890, when Michigan stood first.

The industry in New York originally centered about the salt springs in Onondaga county. These springs were known to the Indians at a very early period. They are spoken of by Le Moyne in 1653, but Father Lallemand is believed to have visited them prior to 1649 and to have been the first white man to do so. About 1770 Onondaga salt was in common use among the Delaware Indians and was sent to Quebec for sale. In 1788 a treaty was entered into with the Onondaga tribe of Indians by which the state agreed to care for the springs for the mutual benefit of whites and Indians. The operations of this treaty proving unsatisfactory, a second treaty was negotiated in 1795, by which the Onondaga salines and a tract of land about them, some 10 square miles in area, were ceded absolutely to the state in consideration of a cash payment of \$1,000 and annual royalties of \$700 and 150 bushels of salt. The area thus acquired constituted the Onondaga Salt Springs reservation, and included the site of the city of Syracuse and of the town of Geddes, nearly all that of the town of Salina, and the whole of Onondaga lake. By this treaty the state became bound to hold and operate the property forever. In 1797 the property was surveyed, a superintendent appointed, and a royalty of 4 cents per bushel levied, the lessees being required to produce not less than 10 bushels a year and to charge not more than 60 cents a bushel. The operation of raising the brine was also in charge of private individuals, and the state authorities then acted only to adjust difficulties between them. In 1812 the royalty was raised to 12½ cents per bushel in order to secure revenue to aid in the construction of canals; and it remained at this figure until 1834, when it was reduced to 6 cents. For the last three years preceding 1834, however, a rebate was allowed which removed the entire royalty and assisted in the payment of the canal tolls. In 1846 the royalty was modified to 1 cent per bushel, and this rate has prevailed up to the present time, although in 1898 the state sold its title to part of the lands. In return for the royalty the state sank wells, raised and delivered the brine to the manufacturer, and inspected and weighed the salt; it also leased land to the manufacturers on which to erect their works. In the winter of 1789-90 Nathaniel

Loomis made 600 bushels of salt, which were sold for \$1 per bushel. In 1797, when the first leases of salt lots were made, 25,474 bushels of salt were produced. The output steadily increased until 1862, when the amount produced reached the maximum of 9,053,874 bushels. At this stage it encountered the competition of Michigan salt, produced from strong brines, with cheap fuel and, because of the location of the wells, having the advantage of cheap transportation. Owing to the competition of cheap Liverpool salt in New York city, and of Michigan salt in the markets of the South and West, the territory commanded by Onondaga salt became much restricted and the industry so depressed that in 1876 but 5,392,677 bushels were produced. Later, however, there was improvement, owing to the establishment of chemical factories by which to convert the salt on the spot into more marketable and intrinsically valuable substances.

While sinking a prospect well for oil in Wyoming county in 1880 a deposit of rock salt 70 feet in thickness was discovered at a depth of 1,300 feet, and other deposits have been found in Genesee and Livingston counties and salt works established. The brines obtained from these wells in western New York contained from 23 to 25 per cent of salt, while the deep wells at Syracuse gave brine carrying only from 17 to 20 per cent and the shallower ones still less. In practice two tons of fuel would produce as much salt at the works in western New York as three tons would at Syracuse. This advantage for the western New York works was partly offset by that which the Syracuse works derived from their proximity to the Erie canal, by means of which their product could be more cheaply transported to the seaboard. Since 1885 the deposits in western New York have been operated at a number of points by the regular methods of mining, thereby yielding rock salt. The amount of rock salt produced in New York in 1900 was 1,866,550 barrels, and in 1905, 2,141,371 barrels, an increase of 14.7 per cent.

The beginning of the industry in other states is briefly as follows: The salines near Equality, Gallatin county, Ill., were operated by the French in 1720. Salt works were erected on Big Beaver creek, in Pennsylvania, in 1784. Salt was manufactured at Avery Island, La., in 1791, but not successfully until 1812; and the deposit of rock salt, from which the brines originated, was not discovered until 1862. The industry was established in Kentucky prior to 1795. The first salt produced in Ohio was made at the old Scioto works in 1798. The recovery of salt from the incrustations on the shore of the Great Salt Lake began with the advent of the Mormons in Utah in 1847. The production of salt is recorded in Tennessee, Minnesota, Nebraska, Missouri, Arkansas, Indian Territory, and New Mexico prior to 1860, but it was probably in small quantities for immediate consumption. The

salt springs of Michigan were known and used by the Indians. On March 4, 1838, over a year after Michigan became a state, an act was passed directing the state geologist to bore for salt at one or more of the salt springs and appropriating \$3,000 for the purpose. The result was not satisfactory nor were the subsequent official tests made in 1840, 1841, and 1842. In 1859, encouraged by a bounty of 10 cents per bushel, offered by the legislature for all salt made in the state, a private company sank a well at East Saginaw, and obtained at a depth of 669 feet nearly saturated brine. The industry thus established grew to the first magnitude. As early as 1857 Texas was reported as producing 20,000 bushels of salt per annum, which was probably derived from an extensive salt lagoon near the Rio Grande; the first salt well sunk in the state was in the town of Colorado in 1884. Although salt was obtained at an early date in Kansas, from the incrustations on the salt marshes which are scattered over the central part of the state, the business was not organized until 1867, when a well was driven at Solomon city, and it assumed importance only with the discovery of a body of rock salt at Lyons, in Rice county, in 1887. The rock salt mined was reported at the census of 1900 as 468,029 barrels, and at the census of 1905 as 991,878 barrels, an increase of 523,849 barrels, or 111.9 per cent. It is claimed that the largest salt block in the world is located in this state and is operated with crude petroleum for fuel. Nevada reported salt for the first time at the census of 1880, when it had a production of 182,408 bushels, obtained for the most part from saline incrustations, but in the case of one establishment from wells. Salt making in Oklahoma began as late as 1896.

At the outset the Federal Government sought to protect and foster the salt industry. From the passage of the tariff act of July 4, 1789, there has usually been a tariff on foreign salt, except for brief intervals. For considerable periods, however, foreign salt used for curing fish on vessels authorized to engage in fishing on the coasts and navigable rivers and lakes within the jurisdiction of the United States, and that used in the packing of meat for exportation, have enjoyed the benefit of drawbacks, or could be imported and used in bond free of duty. The salt resources of the country were treated in the message of President Monroe to Congress, March 28, 1824. In the formation of the states of Ohio, Illinois, Indiana, and Michigan the enabling act reserved to the new state the known saline lands within its confines and bound it not to dispose of such lands. A similar plan was pursued with Missouri and Arkansas, but later on Congress, by special acts, withdrew the restrictions on the power of the states to sell their saline lands. In some instances the United States reserved to itself such land and afterwards disposed of it by sale under special acts. Many of the states have followed the example of New

York in making laws for the proper supervision and control of the industry, so as to protect the public interests and for its encouragement and advancement.

The terms "rock salt," "solar salt," and "salt made by the boiling process," used in Table 8 to distinguish the different kinds of salt, indicate partly the source of the salt and partly the method followed in its manufacture. Rock salt, as it is found in nature, varies considerably in purity. The different beds in the same deposit may, as at Cheshire, England, from which Liverpool salt is obtained, show quite different degrees of purity, or there may be a single thick deposit of great purity throughout. The latter conditions obtain at the Louisiana deposits, numerous samples of which, taken at random, showed 98 to 99.6 per cent of sodium chloride. The method of treatment of such a material so situated is described by A. F. Lucas, as follows:¹

The mines are operated by the chamber and pillar system, and the salt is excavated by undercutting. When the shaft has reached a depth of, say, 250 feet or more below the apex of the deposit, stations are opened, and an undercut 7 feet high, with a face of 75 feet, is commenced. When this has advanced, say, 200 or 300 feet, the roof is attacked and blasted down to the height of about 20 feet. After the removal of the salt thus won, there remains a chamber, say, 75 feet wide by 200 feet long and 20 feet high, in which the roof is again broken down to the final height of 70 feet in the center and 60 feet at the pillars on either side, leaving a natural arch of rock salt, which has proved capable of resisting any overlying weight, as well as preventing leakage of surface waters.

This final excavation is performed with the aid of tripods, made of short ladders, upon which a temporary scaffold is erected for men and machines. A battery of holes, 10 feet deep, is drilled near the brow of the chamber and along its whole face and charged with low explosives. The ladders and machines are then removed and the salt is blasted down. On the pile of this material new scaffolding is erected, and the operation of drilling and blasting is repeated until the desired height of roof is reached. Loose blocks or chips are carefully removed from the final roof, so as to leave a safely solid mass; and the chamber is then abandoned. Every such chamber, 200 feet long by 75 feet wide and 65 feet in average height, yields about 50,000 tons of salt, mined without the use of a single stick of timbering.

Pillars 60 feet square are left between chambers. Whenever a given level shall have been worked out on this plan, it will only be necessary to sink the shaft another hundred feet and repeat the operations described.

It need scarcely be said that these great vaulted chambers, with their piers and arches of pure crystalline salt, present, especially when scintillating under the strong illumination of a calcium or electric light, a most impressive appearance, not paralleled by underground views in ordinary mines. They might easily be fancied to have been the subterranean residences of the mastodons, the bones of which are so frequently found in the overlying drift.

The first undercut of salt is well shattered by blasting and goes to the mill to be ground fine. The first and second roof blasting furnish pieces of solid rock, which is set aside under sheds, to be aerated or weathered before being shipped for "cattle"—purposes. All finer stuff is "grist;" and as, by reason of the uniform purity of the salt, no sorting or purification is required, every pound of salt mined is a pound sold.

In a properly conducted mine, two chambers should be always worked simultaneously, since one undercut alone would not supply

the coarser grades. While one chamber is being undercut, the other, with its roof partly down, equalizes the proportions of the different sizes required for steady operations.

It is not necessary to describe the crushing and sizing of the product. It is all equally pure, and is subjected only to such operations as will recommend it to the various branches of trade. The coarsest crushed salt is used principally by beef and pork packers; the second and third sizes are largely employed in salting hides, in refrigerating, etc.; and there are four grades of still higher fineness, produced by grinding with emery wheels, screening and blowing, which have their several uses—the finest being table salt.

When the rock salt is impure it is purified by dissolving in water and treating the brine thus formed in the manner described below for brine from wells and springs.

Solar salt is that which is made from brine through evaporation by solar heat alone or aided by the wind. A variety known as "bay salt" is made by evaporating sea water in shallow pits, or ponds, made on the shore of the body of water from which the supply is drawn. In the evaporation the calcium sulphate, being the least soluble salt, crystallizes out first and the common salt next, while the more soluble calcium chloride, magnesium salts, sodium sulphate, bromides, and iodides which may be present remain in solution. This remaining solution is styled the mother liquor. As the magnesium salts, which are now quite concentrated, impart to it a markedly bitter taste, the residual solution is also styled "bittern." In order to effect evaporation and separation a series of ponds are prepared. The first of the series is filled by the natural flow of the water at high tide. The brine as it becomes more and more concentrated may be pumped to the other ponds by simple devices, such as an Archimedeal screw actuated by a windmill. The transfer is made to the lime ponds when the brine has reached such a concentration or density that the calcium sulphate is ready to precipitate in the crystalline form known as "gypsum." The brine is allowed to remain in the lime ponds, to concentrate by evaporation, and to precipitate the gypsum and other substances present which have become insoluble at this concentration, until it reaches a density of 25° Baumé, when it is transferred to crystallizing ponds. These ponds are filled to a depth of 10 to 12 inches and the brine is allowed to remain in them until by evaporation it reaches a density of 29° Baumé when, the salt having crystallized out, the mother liquor is drawn off, and the salt gathered and taken to the dry house and mill to be ground into the desired grades. Solar salt may be obtained from salt ponds and lakes, like the Great Salt Lake, by means similar to those just described. Natural solar salt, occurring as an incrustation, may be harvested by plowing and scraping, and refined by crushing, passing over heated cylinders, grinding in roller mills, winnowing, and sifting. At Salton the salt incrustation was cut by means of cable plows into furrows 8 feet wide and 6 inches deep. Each plow harvested over 700 tons of purified salt per day, the

¹ Transactions American Institute of Mining Engineers, 1900, vol. 29, pages 462 to 474.

salt being conveyed from the field to the mill by a portable railroad.

The term "solar salt" is more particularly applied to salt as made at Syracuse, N. Y., Saginaw, Mich., and elsewhere, by evaporating brine in shallow wooden vats, or "covers." The latter term is applied to the vats because they are provided with light movable roofs which are used to protect them during a rainfall. Aprons, which are wooden troughs 15 to 20 feet wide by 2 to 3 inches deep, convey the brine from the wells to the covers. The grade of the aprons is 1 inch in 100 feet, and the brine upon them is kept at an inch in depth. Owing to the great length and width of the aprons, the slowness of flow, the shallowness of the layer of brine, and its complete exposure to the sun and wind, its evaporation and purification are greatly facilitated. Through concentration the gypsum and other bodies of similar solubility are deposited on the aprons and the brine is delivered to the covers, where the salt crystallizes out, in a saturated condition. By the use of aprons, 70 to 80 and even, at times, 92 bushels of salt are obtained per cover, or surface of 16 to 18 feet. Without the use of aprons the average yield was 50 bushels per cover. Solar salt is especially preferred for "heading" and "layer" in packing meat and fish, as the crystals, being formed slowly, are larger and harder and dissolve less readily than those produced by artificial heat.

Salt made by the boiling process is produced from brine by means of artificial heat in either kettles, open pans, vacuum pans, grainers, or superheaters using fire or steam at either high or low pressure. As the gypsum and other precipitated salts may, by covering the pipes and pans with a nonconducting coating which necessitates scaling, interfere with the process or render it more expensive, chemical reagents, such as lime, alum, barium chloride, magnesium carbonate, sodium carbonate, and others, are often employed to change the composition and characteristics of the substance in the brine. These chemicals are the subject of many of the patents that have been granted in this country. When a solution of salt is slowly evaporated the salt crystallizes out in cubes which coalesce into the form of hoppers. When the evaporation is rapid the crystals are smaller, but they unite to form a thin sheet or crust over the brine in the pan or grainer which impedes the evaporation of the brine beneath. To overcome this, butter or other grease is used in grainer work to cut the grain, as the film of grease prevents the formation of the crust. Active ebullition also effects this result and produces very small crystals. Self-rakers, used in some works, produce the same result by agitated crystallization.

The kettle system was used at Syracuse in 1788, when a potash kettle in which to boil the brine was hung over an open fire. It was next set in an arch of brickwork, then 2, and, in 1793, 4 kettles were com-

bined forming a "block." This term has been used ever since in this industry, not only for kettles but for pans and grainers, with the same significance as "battery" in other industries. The block has increased in size until 30 and even 40 kettles have been placed in line from the fire space to the chimney. The difficulty of heating all of these kettles uniformly from a common fire is evident. This is better accomplished by the steam kettle in which the separate units are heated by high pressure steam.

The open pan is of iron, 100 feet long, 23 feet wide, and 10 inches deep. It is divided by a cross partition into a front pan 45 feet long and a back pan 55 feet long. The sides of the pan incline outward and meet draining boards which extend along its sides. The pan is set on a furnace and heated by an open fire.

Vacuum pans are closed pans heated by steam. By means of an exhaust a partial vacuum is maintained within them, thereby promoting the evaporation of the brine and reducing the temperature at which it boils.

Grainers are long vats or troughs heated by steam pipes placed near the surface of the brine. They may be made of wood with or without iron bottoms, or constructed of Portland cement. The operation of grainers at White Rock furnace, Pomeroy, Ohio, is described by Dr. Thomas M. Chatard, as follows:¹

The characteristics of what may be called the Ohio region are cheap fuel and weak brines which, though very impure, are nevertheless practically free from gypsum. The principle of the method is the boiling of the brine in a steam chest, by which a portion of the impurities is rendered insoluble and a large supply of low pressure steam is obtained that is utilized in the further evaporation of the brine. Owing to the large amount of the very soluble "mother liquor salts" fractional crystallization must be resorted to; for, if the brine at different stages of the process be evaporated beyond certain points, the resulting product will be too impure. Hence the grainers are arranged at different levels, so that the mother liquors can be drawn from one to the other, giving a series of products of which the early ones are ready for market, the later being redissolved in the settlers. In this way the process is practically a continuous one, the concentrating brine passing from one to the other of the settlers and grainers in regulated succession, depositing, in its passage, salt of various grades, and the mother liquor, loaded with impurities, going to the bromine works, where that valuable constituent is extracted and the residue itself made into a marketable product.

In this most instructive process the aim is to have nothing but condensed water and ashes as waste; since, were it not for the by-products, many of the works would be forced to suspend operations, owing to the low price to which salt has been forced through domestic competition.

The brine, as pumped, has a specific gravity of 1.062 (9° B., 34.5° salometer), every hundred pounds of brine containing, on an average, 7.4 pounds of salt, 90.5 pounds of water, and 2.1 pounds of impurities, or in the proportion 1:12.3:0.28. As it takes 160 pounds of coal, run of mine, to make 100 pounds of salt, we have 1.6 coal=1 salt=12.3 water, or 1 coal=7.69 water evaporated, a result far in excess of the figures given above for high pressure steam. The steam has a pressure of about four pounds, and all the pipes and

¹Seventh Annual Report, United States Geological Survey, 1885-86, pages 522 to 526, "Salt-making Processes in the United States."

connections are of wood except the grainer pipes, which are copper, and the steam is thus carried with the minimum of condensation and applied with an almost maximum effect.

The brine is pumped into a large tank, in which the small amount of petroleum that accompanies it is separated. When first pumped it is clear and colorless, but it soon turns reddish from the oxidation of the carbonate of iron in it. From the tank it flows through a trough, in which it is heated by steam pipes and is conveyed to the front of the furnace, where it enters the first division of the steam chest.

The furnace walls are built of stone, with a lining of fire brick which extends 12 to 15 inches above the stone wall, and on which the steam chest rests. The grate surface is 12 feet long by 9 feet wide, and the distance from grate to bottom of steam chest is 8 feet 4 inches. No bridge wall is used, the length of grate being sufficient to bank up the fire sufficiently high. The fire door is on the side, the front being closed with the exception of the spaces above the grate for raking down and removing clinkers. The grate bars are either of the ordinary construction or else broad bars with perforations. Chimney draught is used, together with some steam, and the fuel is either the run of mine or else the slack and top coal from the mines, at the mouth of which the works are situated. The fuel is cheap (the first costing about 3 cents a bushel, the other 2 cents), but it contains a large amount of ash and clinkers; hence the peculiar construction of the fire space and grates.

The steam chest in which the brine is boiled is in three divisions, connected by copper pipe. Each division has a cast-iron bottom 1 inch thick, made by placing together side by side 11 pans, each 10 feet long and 3 feet wide, having ends 12 inches deep and sides 8 inches deep, except the two end pans, which have each one side (the end side) 12 inches deep. By bolting these pans together we have a single pan 33 feet long, 10 feet wide, and 12 inches deep, having divisions 8 inches high running across it every 3 feet. The seams of the divisions are thoroughly calked, either with iron filings or (the better but more expensive way) with cloth dipped in white lead.

Resting on the divisions and bolted to the inside of the side plates is the side planking, 4 inches thick and 4 feet high, the seams being horizontal. The ends of the steam chest are formed by bolting to the outside of each of the end sides of the pan the so-called "damper," a cast-iron plate 1 inch thick and 2 feet high, having sides which extend back about 8 inches on the outside of side planking; the remaining portion of the ends is filled out with 4-inch planking bolted to the inside of upper edge of damper and grooved into the ends of side planking. Across the top of the tank so formed are six iron joists, let in flush with the upper edge, on which the top planks, also 4 inches thick, are laid. The tightening of the seams of the planking is effected as follows: In the center of the ends of each section of the pan is cast a lug which takes the square head of a long bolt extending upward through the end of a cap timber. These bolts are threaded, and by screwing down the nuts all horizontal seams are drawn tight. Either end of the cap has a piece bolted to the under side, so that a wedge can be driven between this projection and the outside top plank, thus drawing up all the seams of the top.

The steam chest rests on the top of the fire brick wall, and for this purpose each lower corner of each section of the bottom has a projection cast on it about 6 inches long. The space between the divisions, 30 inches, is arched with fire brick, and the connection between the divisions is made by a copper pipe opening below the surface of the brine, so that the level is the same throughout. In this steam chest the brine is boiled till it reaches 15° to 18° B., depending upon the needs of the grainers for brine, the steam pressure carried being about 4 pounds. The brine, deeply colored by suspended oxide of iron, is then drawn off and flows into the first mud settler, reaching it on the upper side of the water-tight central partition; passes to the farther end, then through a low place cut in the top of the partition back to the head of the settler, whence it goes to the second mud settler to make the same round. By this

time the iron mud is deposited and the brine, already much concentrated, flows to the first or the second "draw settler," as needed, where it concentrates until ready to deposit salt, unless the grainers require it before it reaches that point, which is 23° B. (sp. gr. 1.178). From the draw settlers it goes to grainers 1 and 5, where it deposits the best salt. When the brine in No. 1 attains 24° to 25° B. it is drawn into No. 2, while that in No. 5 reaches 26° to 27° B. and then goes to No. 4. Nos. 2 and 4 give a quality of salt but little inferior to that of Nos. 1 and 5.

The mother liquor of No. 2 and No. 4 goes at 29° B. to No. 3, where, still depositing salt, though of an inferior kind (No. 2), it reaches 31° B., when it is drawn into the "peacemaker" or smaller grainer, where it concentrates to 34° to 35° B., being then transferred to a "bitter water cistern" and rising to 37° B. In each of these some salt is deposited; but it is so impure that it is redissolved in the first mud settler. The heavy mother liquor is now ready for the bromine works, where it is distilled with sulphuric acid and chlorate of potash, yielding, when properly managed, about one pound of bromine for every two barrels of salt made.

The residue of the bromine distillation is then neutralized with lime and evaporated. It deposits some agricultural salt, and the hot liquid, consisting mainly of chlorides of calcium and magnesium, is run into oil barrels, solidifies on cooling, and is sold, being employed for making the nonfreezing liquid of the Pictet ice making process.

The settlers and grainers, with the exception of the "peacemaker," are each 180 feet long and made of 4-inch lumber, pine or poplar, preferably the latter. The steam connections are all of wood, being made of pine or poplar logs with a 6-inch bore, the copper pipes being 5 inches in diameter, three-sixteenths of an inch thick, connected by goosenecks to the head logs at upper end of grainers and passing through the lower end. The condensed water runs to waste, experience having shown that no further benefit can be derived from the small amount of heat thus lost.

The absence of sulphate of lime, one of the most important points connected with this brine, permits the use of the light copper pipe to which, in great measure, the high evaporative result is due. The low pressure steam allows the use of wood in constructing the steam chest and in making the steam connections, by which we get a material of very low conducting power at a very low cost. The steam is thus delivered, with but little loss of its heat, into pipes made of a metal of high conducting power, which is not lessened, as in other brines, by the formation on the pipes of a coating of nonconducting gypsum, continually increasing in thickness and retarding evaporation in proportion.

Examination of the patents relating to this industry indicates the activity in invention of processes and apparatus for the manufacture of salt in this country. The importance of this industry is emphasized by the fact that the first patent of record granted by any government in North America was issued by Massachusetts Bay Colony in 1641 to Samuel Winslow for a method of making salt, and that the fourth patent of record was issued by the same government to John Winthrop, son of Governor Winthrop, for a method of making salt. Of the methods in use to-day, the grainer method is regarded as distinctively American.

Reference has been made in the above quotation to the salometer. This is an hydrometer which is especially graduated for salt solutions, and on which the 0° represents pure water and 100° water saturated with salt, both being determined at 60° F. In some districts the Baumé hydrometer is used, but the readings are readily convertible, as 1° Baumé is closely equivalent to 4° on the salometer.

For some purposes salt which is only partially purified is desirable. Thus in the Kanawha and Ohio river regions a salt is made containing magnesium and calcium chlorides. These chlorides tend to make the salt fine-grained, sharper in taste, and more rapidly soluble, and such salt is preferred to the harder-grained salt in curing meats in warm climates where speedy action is sought. As made in the early days, it retained iron compounds also, and became widely and favorably known as "that strong red salt from the Kanawha 'licks.'"

Salt is used as food; in the preservation of food; as a source of sodium, and for the preparation of sodium compounds, such as sodium carbonate (soda ash), crystallized sodium carbonate (sal soda, washing soda), sodium hydrogen carbonate (bicarbonate of soda, bread soda), sodium hydroxide (caustic soda, soda lye), sodium sulphate (salt cake), crystallized sodium sulphate (Glauber's salt), sodium silicate (water glass), and a large number of other substances; as a source of chlorine and for the preparation of chlorine compounds, such as hydrochloric acid (muriatic acid), sodium hypochlorite (chloride of soda), chloride of lime (bleaching powder), chloroform, and many chlorides, chlorates, and chlorine substitution compounds; in the manufacture of dyestuffs and other organic compounds, for "salting out" the sulphonic acids produced; in the manufacture of soap; in chlorination and other processes for the recovery of precious metals from their ores; in the salt glazing of tiles and pottery; in the manufacture of fertilizers; in top dressing soil for eradicating weeds; in curing hides and skins and in the alum mixture used for tawing hides; in the manufacture of fireworks; in artificial mineral waters; in freezing mixtures; in thawing ice in pipes and on pavements; for surgical purposes; and for a great variety of minor uses.

An effort has been made to ascertain the various uses to which the salt produced and imported at the census of 1905 was put, and the extent in each case. This has been accomplished in part by searching the returns of manufacturers for the materials used in the various industries. The results thus obtained are thought to be below the truth for the industries named, since, as salt is one of the lowest priced of the many materials used in many instances, the quantity is not returned, and its value is given in combination with other minor items, under the term "all other materials." This has been done to such an extent in certain industries that the amount has had to be estimated for them. It is believed, however,

that these estimates are conservative and fairly reliable. The results are given in Table 12.

TABLE 12.—Quantity of salt consumed for specific purposes: 1905.

	Quantity (barrels)
Total domestic consumption.....	23,104,699
Soda products and bleaching materials.....	4,876,387
Miscellaneous chemicals.....	1,069,171
Curing and tawing hides and skins.....	446,542
Freezing mixtures.....	412,325
Muriatic acid.....	343,029
Soap.....	324,486
Chlorination.....	150,000
Pottery, terra cotta, and fire clay products.....	59,300
Dyestuffs and extracts.....	20,464
Fertilizers.....	17,186
Brick and tile.....	16,771
Food, preservation of food, and all other purposes.....	15,368,538

The amount of salt used in different articles of food varies greatly according to the nature of the articles and according as the salt is used alone or in combination with other preservatives, such as salt-peter, boric acid, etc. The amount differs for the same article according to the demands of trade. Formerly, for instance, one ounce of salt was the usual amount added to each pound of fresh butter; to-day favorite grades are made with one-half ounce and in some instances one-fourth ounce of salt to the pound. The following statement gives the average percentage of salt in a number of commonly used varieties of salted food, as reported by Dr. W. D. Bigelow, chief of the division of foods, United States Department of Agriculture:

Salt fish, all varieties.....	12.5
Desiccated soup and dried and smoked beef.....	9.0
Potted meat.....	6.0
Meat extract and sausage.....	5.0
Bacon, butter, oleomargarine, corned beef, ham and shoulder.....	4.0
Bread.....	2.5
Concentrated soup.....	2.0
Tripe.....	1.5
Soup.....	0.8

A future investigation may make it possible to extend this analysis of the distribution of the salt product to the dairy and packing industries, but the statistics now at command do not permit this.

The use of salt in the manufacture of food frequently serves several purposes. In the production of bread, for instance, its presence not only removes the insipid taste characteristic of unsalted bread, but modifies the chemical actions taking place in the dough, checking the tendency to lactic or butyric fermentations which might otherwise follow that alcoholic fermentation which causes the raising of the dough.

APPENDIX.

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COTTONSEED PRODUCTS

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COTTONSEED PRODUCTS.

The manufacture of cottonseed products is of comparatively recent origin. While several cottonseed-oil mills had been built in the United States prior to 1840, the industry did not reach commercial importance before 1870. There were 7 of these establishments in 1860 and 26 in 1870. During the thirty-five years since 1870 the industry has grown in a most rapid manner.

Before the coming of the cottonseed-oil mill about the only value which attached to cottonseed was for planting and fertilizing purposes. The exhausted condition of the soil in the Atlantic coast states first led to its use in this country as a fertilizer. The value placed upon the seed when so used was from \$6 to \$9 per ton, while the average price paid by the oil mills during the census year 1905 was \$15.51. In those localities where the seed was not used as a fertilizer its disposition often gave the ginner and the community great concern. The usual method of disposal was to haul the seed to a remote place to rot or to dump it into a convenient stream of running water. As the population grew, and the cotton growing industry developed, this means of disposal became a menace to health to such an extent as to call for legislation in some of the states forbidding this practice.

Table 1 is a summary for the cottonseed products industry, showing capital invested, number of em-

ployees, salaries and wages, miscellaneous expenses, cost of materials, and value of products, by states and territories, for 1890, 1900, and 1905. The statistics of 1905 are, as a rule, for the calendar year 1904, but as the fiscal year for many of the establishments does not end with December, and as the managers were given the option of making their reports for either the fiscal or the calendar, the period covered by the reports did not always coincide with the calendar year.

Reports were received from 715 establishments for 1905, 369 for 1900, and 119 for 1890. The establishments in 1905 were located in 19 states, but it is impossible to publish separate totals for 5 of the states without disclosing the operations of individual establishments. The statistics for these 5 states are therefore grouped under "all other states" in the tables and include establishments distributed as follows: Illinois, 2; New Jersey, 1; Ohio, 1; Rhode Island, 1; Virginia, 2.

The statistics of Table 1 include those for establishments engaged in the extracting and refining of oil, mixing of fertilizers and feed when conducted in connection with cottonseed-oil mills, and the manufacture of paper stock and other products from cottonseed hulls, but do not include those for establishments manufacturing cottonseed products in connection with other industries where the other products exceed in value those made from cottonseed.

MANUFACTURES.

TABLE 1.—COMPARATIVE SUMMARY FOR COTTONSEED PRODUCTS,

STATE OR TERRITORY.	Year.	Number of establishments.	CAPITAL.				
			Total.	Plant.			Cash and sundries.
				Land.	Buildings.	Machinery, tools, and implements.	
1 United States.....	1905	715	\$73,771,407	\$4,352,919	\$15,091,808	\$32,233,578	\$22,093,102
	1900	369	34,451,461	2,155,456	7,166,721	14,511,566	10,617,718
	1890	119	12,808,996	898,345	2,733,217	5,309,452	3,867,982
2 Alabama.....	1905	58	5,168,939	251,324	1,053,769	2,206,742	1,657,104
	1900	28	1,609,674	106,489	383,822	782,762	336,601
	1890	9	592,408	77,391	183,259	272,192	59,566
3 Arkansas.....	1905	42	4,105,585	207,811	1,030,008	2,110,053	757,713
	1900	20	2,484,794	207,353	642,473	1,272,061	362,907
	1890	8	1,488,690	91,921	301,721	774,386	320,662
4 Florida.....	1905	3	241,904	23,648	50,057	120,202	47,997
5 Georgia.....	1905	112	11,527,997	937,502	1,700,948	4,179,370	4,710,177
	1900	43	4,098,668	235,853	683,532	1,428,334	1,750,949
	1890	17	992,131	92,000	253,200	467,100	179,831
6 Indian Territory.....	1905	14	1,454,984	75,375	353,176	718,345	308,088
	1900	6	394,850	2,850	129,000	234,860	28,140
7 Kentucky.....	1905	3	3,440,537	74,158	215,597	543,399	2,607,383
	1900	3	2,029,296	40,680	165,546	309,656	1,513,414
8 Louisiana.....	1905	51	8,686,711	378,479	1,607,765	3,268,647	3,431,820
	1900	24	4,622,569	274,093	780,819	1,671,024	1,896,633
	1890	7	1,082,752	53,900	203,200	399,300	426,352
9 Mississippi.....	1905	91	8,551,910	442,208	1,947,832	4,103,880	2,057,990
	1900	41	3,711,930	203,545	786,100	1,857,995	864,290
	1890	13	1,497,746	149,954	444,100	537,100	366,592
10 Missouri.....	1905	4	765,773	99,800	120,577	267,247	278,149
11 North Carolina.....	1905	43	3,118,343	211,888	708,515	1,463,283	734,657
	1900	21	1,841,856	61,831	298,044	529,248	952,733
	1890	11	748,675	34,766	172,600	322,749	213,560
12 Oklahoma.....	1905	10	1,135,171	67,450	248,114	508,907	310,700
	1900	6	324,503	22,003	140,236	134,268	27,996
13 South Carolina.....	1905	100	5,177,178	228,727	963,348	2,796,459	1,188,644
	1900	50	1,959,872	66,767	369,601	877,784	645,720
	1890	17	565,372	20,798	125,883	334,365	84,326
14 Tennessee.....	1905	20	2,913,999	373,297	543,176	1,178,115	819,411
	1900	17	1,996,791	349,255	425,679	850,355	371,502
	1890	15	1,833,204	178,510	273,279	827,386	554,029
15 Texas.....	1905	157	14,179,688	749,595	3,825,948	7,326,194	2,277,951
	1900	103	7,986,962	457,027	2,088,043	4,119,546	1,322,346
	1890	13	2,358,615	149,950	596,634	1,079,009	533,022
16 All other states.....	1905	7	3,302,688	231,657	722,978	1,442,735	905,318
	1900	7	1,889,696	127,710	273,826	443,673	544,487
	1890	9	1,664,403	49,155	179,341	295,865	1,130,042

¹Includes establishments distributed as follows: Illinois, 2; New Jersey, 1; Ohio, 1; Rhode Island, 1; Virginia, 2.

²Includes establishments distributed as follows: Florida, 1; Illinois, 1; Kansas, 1; Missouri, 2; Ohio, 1; Rhode Island, 1.

³Includes establishments distributed as follows: Florida, 2; Kentucky, 2; New York, 3; Ohio 1; Rhode Island, 1.

COTTONSEED PRODUCTS.

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BY STATES AND TERRITORIES: 1905, 1900, AND 1890.

Proprietors and firm members.	SALARIED EMPLOYEES.										
	Superintendents, managers, clerks, etc.										
	Aggregate.		Officers of corporations.		Total.		Men.		Women.		
	Number.	Salaries.	Number.	Salaries.	Number.	Salaries.	Number.	Salaries.	Number.	Salaries.	
63 82	3,229 1,569 395	\$3,062,157 1,579,252 414,047	588 338	\$815,292 488,450	2,641 1,231 395	\$2,246,865 1,090,802 414,047	2,606 1,218 391	\$2,231,215 1,083,382 412,197	35 13 1	\$15,650 7,420 1,850	1
17 21	281 106 43	253,904 99,020 46,985	53 19	72,968 18,500	228 87 43	180,936 80,520 46,985	227 86 42	180,816 80,220 46,735	1 1 1	120 300 250	2
3 1	210 94 25	197,467 116,364 38,116	30 13	44,715 26,300	180 81 25	152,752 90,064 38,116	180 80 25	152,752 89,704 38,116	1	360	3
	14	12,393	5	6,100	9	6,293	9	6,293			4
11 7	498 195 49	472,261 187,164 41,128	90 46	117,447 48,676	408 149 49	354,814 138,488 41,128	399 149 49	351,146 138,488 41,128	9	3,668	5
	54 22	56,137 24,100	7 9	10,050 13,100	47 13	46,087 11,000	46 13	45,087 11,000	1	1,000	6
	55 20	76,240 52,877	6 7	37,300 33,500	49 23	38,940 19,377	43 21	36,212 17,697	6 2	2,728 1,680	7
4 5	307 164 40	311,673 159,210 41,010	44 31	86,182 49,135	263 133 40	225,491 110,075 41,010	260 131 38	223,761 109,275 40,410	3 2 2	1,730 800 600	8
6 12	451 199 30	454,713 211,475 31,856	69 34	100,370 55,239	382 165 30	354,343 156,236 31,856	379 165 80	353,168 156,236 31,856	3	1,175	9
	22	22,908	7	8,500	15	14,408	14	13,688	1	720	10
8 19	157 87 19	122,963 68,416 13,376	46 28	41,092 29,220	111 59 19	81,871 39,196 13,376	111 59 19	81,871 39,196 13,376			11
I	55 19	53,657 18,718	11 5	13,300 6,000	46 14	40,357 12,718	44 14	39,037 12,718	2	1,320	12
8 13	341 162 33	232,675 108,798 12,278	125 51	79,471 36,911	216 111 33	153,204 71,887 12,278	214 111 33	152,644 71,887 12,278	2	560	13
2	118 80 54	138,486 104,773 53,534	22 15	53,377 39,572	96 65 54	85,109 65,201 53,534	94 64 53	84,664 64,221 52,534	2 1 1	445 880 1,000	14
15 15	614 376 54	577,608 375,013 54,086	68 70	104,671 107,685	546 306 54	472,937 267,328 54,086	541 300 54	470,753 263,928 54,086	5 6	2,184 3,400	15
1	52 35 48	79,072 53,324 81,678	7 10	39,749 24,612	45 25 48	39,323 28,712 81,678	45 25 48	39,323 28,712 81,678			16

MANUFACTURES.

TABLE 1.—COMPARATIVE SUMMARY FOR COTTONSEED PRODUCTS.

1	STATE OR TERRITORY.	Year.	Number of establishments.	WAGE-EARNERS AND WAGES.							
				Total.		Men 16 years and over.		Women 16 years and over.		Children under 16 years.	
				Average number.	Wages.	Average number.	Wages.	Average number.	Wages.	Average number.	Wages.
1	United States.....	1905	715	15,539	\$4,837,694	15,496	\$4,831,558	26	\$4,588	17	\$1,548
		1900	369	11,007	3,143,459	10,936	3,127,543	54	13,578	17	2,338
		1890	119	5,906	1,493,780	5,814	1,479,690	55	9,607	37	4,483
2	Alabama.....	1905	58	1,400	381,237	1,397	381,021			3	216
		1900	28	759	196,700	757	196,261	1	439		
		1890	9	490	86,363	488	86,147		100	1	116
3	Arkansas.....	1905	42	922	329,259	921	329,189			1	70
		1900	20	667	232,856	667	232,856				
		1890	8	511	158,651	511	158,651				
4	Florida.....	1905	3	53	16,579	53	16,579				
5	Georgia.....	1905	112	2,307	607,739	2,290	604,778	15	2,661	2	300
		1900	43	1,591	354,017	1,581	352,875	1	115	9	1,027
		1890	17	751	145,557	737	144,123	12	1,194	2	240
6	Indian Territory.....	1905	14	282	91,989	282	91,989				
		1900	6	121	38,587	120	38,331	1	256		
7	Kentucky.....	1905	3	306	86,400	306	86,400				
		1900	3	180	59,070	166	56,470	8	1,664	6	936
8	Louisiana.....	1905	51	1,605	560,819	1,594	559,237	6	1,079	5	503
		1900	24	1,317	347,051	1,308	343,889	9	3,162		
		1890	7	387	136,182	361	132,050	3	468	23	3,664
9	Mississippi.....	1905	91	2,499	732,165	2,494	731,366	3	500	2	299
		1900	41	1,521	461,357	1,507	458,714	13	2,493	1	150
		1890	13	891	211,139	865	205,074	26	6,065		
10	Missouri.....	1905	4	123	38,399	122	38,195	1	204		
11	North Carolina.....	1905	43	867	232,766	867	232,766				
		1900	21	564	133,195	563	133,095	1	100		
		1890	11	318	56,596	310	56,303	1	15	7	278
12	Oklahoma.....	1905	10	214	89,918	214	89,918				
		1900	6	101	31,463	101	31,463				
13	South Carolina.....	1905	100	1,282	320,218	1,281	320,158			1	60
		1900	50	734	143,932	733	143,682	1	250		
		1890	17	416	56,354	412	56,109			4	185
14	Tennessee.....	1905	20	701	244,700	698	244,690			3	100
		1900	17	751	204,219	747	203,470	4	749		
		1890	15	1,030	183,444	1,023	182,934	7	510		
15	Texas.....	1905	157	2,739	1,019,541	2,738	1,019,397	1	144		
		1900	103	2,478	830,766	2,464	826,311	13	4,230	1	225
		1890	13	866	320,140	861	318,885	5	1,255		
16	All other states.....	1905	7	239	85,875	239	85,875				
		1900	7	223	110,246	222	110,126	1	120		
		1890	9	246	139,354	246	139,354				

¹ Includes establishments distributed as follows: Illinois, 2; New Jersey, 1; Ohio, 1; Rhode Island, 1; Virginia, 2.

² Includes establishments distributed as follows: Florida, 1; Illinois, 1; Kansas, 1; Missouri, 2; Ohio, 1; Rhode Island, 1.

³ Includes establishments distributed as follows: Florida, 2; Kentucky, 2; New York, 3; Ohio, 1; Rhode Island, 1.

COTTONSEED PRODUCTS.

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BY STATES AND TERRITORIES: 1905, 1900, AND 1890—Continued.

MISCELLANEOUS EXPENSES.					COST OF MATERIALS USED.									
Total.	Rent of works.	Taxes, not including internal revenue.	Rent of offices, interest, etc.	Contract work.	Aggregate.	Principal materials.			Fuel.	Mill supplies.	Freight.	Paid for power and heat.	Value of products.	
						Total.	Purchased in raw state.	Purchased in partially-manufactured form (including all other materials).						
\$4,860,157 2,433,912 1,163,586	\$24,243 15,175	\$515,671 260,726	\$4,248,872 2,135,064	\$71,371 22,947	\$80,030,963 45,165,823 14,363,126	\$77,066,239 40,688,121	\$51,358,687 26,167,037	\$25,707,552 14,521,084	\$2,207,778 1,113,353	\$488,601 1,009,102	\$261,530 2,340,082	\$6,815 15,165	\$96,407,621 58,726,632 19,335,947	I
367,078 194,450 87,003	4,200 1,250	33,021 15,477	329,857 171,705	6,018	4,554,190 2,103,768 945,069	4,348,984 1,881,037	4,062,459 1,761,911	286,525 119,126	145,476 70,646	53,784 53,592	5,946 98,493		5,769,061 2,985,890 1,203,989	2
307,165 160,896 160,148	2,150	29,927 15,866	275,088 143,321	1,709	4,200,195 1,995,771 1,319,039	4,032,414 1,672,669	3,863,975 1,636,341	168,439 36,328	128,353 72,307	31,176 82,701	8,252 168,094		4,939,919 3,188,812 1,881,668	3
14,682		1,646	13,036		210,272	200,405	194,248	6,157	8,102	1,765			261,864	4
634,876 312,986 86,843	4,000 100	66,253 28,727	564,429 282,959	194 1,200	11,262,741 6,229,436 1,289,421	10,905,472 5,674,546	5,645,225 3,070,662	5,260,247 2,603,884	278,268 122,596	69,821 90,180	6,600 342,114	2,580	13,539,899 8,064,112 1,670,196	5
91,555 17,523	300	8,311 2,311	83,244 14,912		1,166,881 340,247	1,107,651 309,810	1,052,942 301,310	54,709 8,500	43,060 11,477	4,925 8,960	11,245 10,000		1,505,299 461,656	6
182,607 68,632		5,750 1,735	176,857 66,897		4,295,477 4,225,390	4,231,936 4,093,308	60,494	4,171,442 4,093,308	15,017 11,193	3,163 35,925	45,361 84,964		5,697,549 4,683,343	7
578,052 295,358 48,124	250 2,400	83,237 51,421	494,565 241,495	12	11,477,219 5,792,469 1,058,115	11,072,849 5,262,732	4,680,659 2,251,619	6,392,190 3,011,113	289,299 125,043	47,913 128,332	67,158 276,362		13,187,608 7,026,452 1,573,626	8
760,483 337,141 186,754	4,626 140	97,377 44,117	658,480 289,884	3,000	10,070,457 4,952,814 1,757,807	9,614,642 4,360,275	8,782,149 4,164,129	832,493 196,146	362,531 148,695	60,753 119,159	32,531 324,520	165	12,587,147 6,681,121 2,406,628	9
25,436		5,256	20,180		867,832	846,448	317,112	529,336	14,016	7,368			999,289	10
150,329 110,161 31,877	13,937 60	136,392 7,374	136,392 102,727		2,955,646 2,160,996 402,199	2,812,911 1,860,644	2,620,615 1,645,895	192,296 214,749	110,483 54,804	28,394 46,480	2,658 199,068	1,200	3,748,789 2,676,871 529,746	11
76,235 14,194	60	7,228 3,369	69,007 10,765		1,185,908 264,829	1,119,734 240,480	1,076,126 236,450	43,608 4,030	52,561 15,169	3,613 7,908	10,000 1,272		1,603,584 422,699	12
266,556 127,462 59,136	7,600 600	31,674 14,568	227,242 102,529	40 9,765	4,553,470 2,362,837 740,605	4,317,074 2,139,295	3,767,983 1,797,567	549,091 341,728	177,281 66,629	55,836 64,451	1,479 80,462	1,800 12,000	5,462,818 3,103,425 927,772	13
235,611 183,222 220,051	1,160 210	21,573 16,661	212,878 166,351		3,083,955 2,277,855 1,748,953	2,986,076 1,995,156	2,367,686 1,851,785	618,390 143,371	76,309 63,922	21,570 58,344	157,433	3,000	3,743,927 2,980,041 2,504,741	14
979,807 550,225 233,070	245 2,635	94,875 50,743	884,687 495,634	1,213	15,804,741 10,372,753 2,531,911	15,160,500 9,287,660	12,437,330 7,114,018	2,723,170 2,173,642	480,936 333,187	93,607 258,564	68,781 493,342	917	18,698,815 14,005,324 3,262,596	15
189,685 61,662 50,580	12 7,420	15,606 8,357	102,930 45,885	71,137	4,341,979 2,086,658 2,570,007	4,309,143 1,910,509	429,684 335,350	3,879,459 1,575,159	26,086 17,685	4,913 54,506	1,519 103,958	318	4,662,053 2,456,886 3,374,985	16

As shown by the figures in Table 1, the number of establishments increased from 119 in 1890 to 715 in 1905, or 500 per cent. Between 1900 and 1905 the number of establishments increased from 369 to 715, or 94 per cent. The cost of materials used increased from \$14,363,126 in 1890 to \$45,165,823 in 1900, and to \$80,030,963 in 1905, the rate of increase being 457 per cent from 1890 to 1905, and 77 per cent from 1900 to 1905. The value of products increased from \$19,335,947 in 1890 to \$58,726,632 in 1900, and to \$96,407,621 in 1905, a gain for 1905 over 1890 of 399 per cent, and over 1900 of 64 per cent. In 1890 the value of products exceeded the cost of materials by

34.6 per cent, while in 1905 the excess in value was only 20.5 per cent. The capital invested increased from \$12,808,996 in 1890 to \$73,171,407 in 1905, or 471 per cent. The average capital invested per establishment in 1890 was \$107,639, compared with \$102,338 in 1905.

Table 2 is a comparative summary, for 1900 and 1905, of the quantity and cost of cottonseed crushed for oil extraction, the average amount crushed per establishment, and the quantity and value of each of the products, together with the total value of all products, by states and territories.

TABLE 2.—COMPARATIVE SUMMARY OF THE QUANTITY AND COST OF SEED CRUSHED, AND QUANTITY AND VALUE OF PRODUCTS MANUFACTURED, BY STATES AND TERRITORIES: 1905 AND 1900.

STATE OR TERRITORY.	Year.	Number of active establishments.	COTTONSEED CRUSHED.				PRODUCTS.							
			Tons.	Cost.	Average consumption per mill (tons).	Total value.	Oil.		Meal and cake.		Hulls.		Linters.	
							Gallons.	Value.	Tons.	Value.	Tons.	Value.	Pounds.	Value.
United States.	1905	1 717	3,345,370	\$51,878,604	4,666	\$69,310,624	133,817,772	\$31,341,912	1,360,172	\$27,766,556	1,213,344	\$5,588,814	117,792,969	\$4,613,342
	1900	357	2,479,386	28,632,616	6,945	42,411,835	93,325,729	21,390,674	884,391	16,030,576	1,169,286	3,189,354	57,272,053	1,801,231
Alabama	1905	53	265,653	4,062,458	4,580	5,578,189	10,634,364	2,565,424	107,229	2,217,343	95,517	490,860	8,420,399	304,562
	1900	27	172,093	2,019,085	6,374	2,952,254	6,704,951	1,520,834	60,389	1,076,150	80,167	217,925	4,331,016	137,345
Arkansas	1905	42	238,227	3,863,975	5,672	4,912,819	9,557,668	2,373,600	94,263	1,853,278	84,374	343,209	8,572,572	342,732
	1900	20	190,015	2,245,710	9,501	3,188,812	7,224,971	1,644,465	65,459	1,142,102	90,683	245,770	4,613,519	153,475
Florida	1905	5	16,478	250,072	3,296	339,361	677,535	154,343	7,959	142,967	4,820	25,747	477,734	18,304
Georgia	1905	120	368,996	5,924,680	3,075	8,109,677	15,284,303	3,679,539	151,011	3,157,920	131,521	751,644	13,281,489	520,574
	1900	46	271,833	3,246,814	5,909	4,787,100	10,606,693	2,468,386	91,637	1,713,038	132,344	405,581	6,398,830	200,095
Indian Territory	1905	14	81,501	1,052,942	5,822	1,480,244	3,013,446	605,636	32,198	636,069	31,368	116,173	3,268,695	122,366
	1900	6	26,415	297,939	4,403	446,078	931,885	207,251	9,185	182,807	13,074	32,972	673,975	23,048
Louisiana	1905	49	319,704	4,721,103	6,525	6,623,523	13,158,549	2,985,670	138,301	2,812,160	103,955	414,527	10,771,905	411,166
	1900	21	250,983	2,833,767	11,952	4,397,891	9,692,640	2,222,762	91,348	1,715,424	114,446	287,650	6,133,661	172,055
Mississippi	1905	92	556,396	8,932,300	6,048	12,093,059	22,975,991	5,752,963	228,122	4,673,017	198,464	942,705	17,418,633	724,374
	1900	41	394,678	4,577,995	9,626	6,671,031	15,033,565	3,364,278	141,529	2,618,405	185,060	396,791	9,199,737	291,557
Missouri	1905	4	16,618	282,939	4,155	326,754	672,368	147,799	6,575	131,907	6,152	24,841	549,149	22,207
North Carolina..	1905	44	148,097	2,650,615	3,366	3,446,709	6,269,062	1,600,950	59,787	1,376,619	53,184	268,813	4,472,965	200,327
	1900	20	107,660	1,313,663	5,383	1,880,015	4,388,277	979,637	36,088	678,973	52,139	145,928	2,149,996	75,477
Oklahoma	1905	10	86,953	1,076,126	8,695	1,599,835	3,371,527	644,407	35,219	704,762	30,896	108,239	3,901,265	142,427
	1900	6	26,425	247,520	4,404	410,063	937,021	186,761	9,481	163,785	12,424	40,897	525,550	18,620
South Carolina..	1905	99	213,103	3,767,983	2,153	4,946,030	9,178,661	2,322,876	90,815	1,986,895	71,942	366,795	6,641,495	269,464
	1900	48	156,642	2,186,408	3,263	3,043,547	6,162,218	1,545,934	57,986	1,169,645	71,542	217,886	3,223,892	110,082
Tennessee	1905	20	143,479	2,367,686	7,174	3,099,247	5,760,599	1,442,643	58,477	1,169,980	53,738	232,477	5,918,496	254,147
	1900	15	168,307	1,848,829	11,220	2,737,038	6,454,173	1,363,555	59,613	1,045,795	79,858	196,105	4,058,473	131,583
Texas	1905	155	864,767	12,437,330	5,579	16,173,485	32,239,649	6,776,342	340,709	6,698,821	337,233	1,450,984	33,307,490	1,247,338
	1900	102	692,604	7,660,661	6,790	11,519,656	24,354,695	5,696,263	252,983	4,371,377	328,119	975,489	15,544,379	476,527
All other states..	1905	25	25,398	488,395	5,080	581,692	1,024,050	289,720	9,507	204,818	10,180	51,800	790,682	35,354
	1900	25	21,731	254,225	4,346	378,350	834,640	190,548	8,693	153,075	9,430	23,360	419,025	11,367

¹ Includes 14 establishments engaged primarily in the manufacture of other products.

² Includes establishments distributed as follows: Illinois, 2; Kentucky, 1; Virginia, 2.

³ Includes establishments distributed as follows: Florida, 1; Illinois, 1; Kansas, 1; Missouri, 2.

The number of establishments shown in Table 1 is 715, while in Table 2 the number is 717. This difference is due to two causes. Table 1 includes all establishments in which the aggregate value of products from extracting and refining oil, mixing fertilizer and feed when conducted in connection with cottonseed-oil mills, and manufacturing paper stock and other products from cottonseed hulls exceeded the value of all products not made from cottonseed. Table 2 includes all establishments which crushed any seed for oil extraction during the year, but does not include those establishments which refined oil only after it was extracted. Table 1 includes 12 establishments which are omitted from Table 2, because they only refine oil extracted by other establishments, and Table 2 contains 14 establishments which are not included in Table 1, because their products made from cottonseed are of smaller value than their other products.

The number of establishments engaged in crushing cottonseed increased 360, or 100.8 per cent, between 1900 and 1905, while the quantity of seed crushed increased from 2,479,386 tons in 1900 to 3,345,370 in 1905, or 34.9 per cent. The average "crush" of the mills reported in 1900 was 6,945 tons for the season, which compares with 4,666 tons for 1905, a decrease of 32.8 per cent. The decrease in the average quantity of seed consumed per establishment emphasizes the tendency toward the installation of smaller mills. The total value of products increased from \$42,411,835 in 1900 to \$69,310,624 in 1905, a gain of 63.4 per cent. The total cost of seed crushed increased from \$28,632,616 in 1900 to \$51,878,604 in 1905, or 81.2 per cent. As the value of the products exceeded the cost of materials by 48.1 per cent in 1900, and only 33.6 per cent in 1905, a smaller margin of profit in the industry is indicated for 1905. The value of crude oil manufactured in 1900 was \$21,390,674, compared with \$31,341,912 in 1905, an increase of 46.5 per cent; while the value of meal and cake increased from \$16,030,576 to \$27,766,556, or 73.2 per cent. The average quantity of oil obtained per ton of seed in 1900 was 37.6 gallons,

compared with 40 in 1905, an increase of 6.4 per cent; while the average quantity of meal and cake obtained per ton of seed crushed increased from 713 pounds in 1900 to 813 in 1905, a gain of 14 per cent. The quantity of hulls obtained per ton of seed in 1900 was 943 pounds, compared with 725 in 1905, a loss of 23.1 per cent. The decrease in the quantity of hulls and the increase in the quantity of oil and of meal and cake obtained from a ton of cottonseed would indicate a higher economic development of the industry.

During 1904 the percentage that the seed crushed formed of the seed produced was as follows for the several states: Alabama, 38.5; Arkansas, 54.5; Florida, 43.7; Georgia, 41.1; Indian Territory, 36.3; Louisiana, 61.5; Mississippi, 66; Missouri, 68.7; North Carolina, 44.6; Oklahoma, 54.9; South Carolina, 38.9; Tennessee, 92.2; Texas, 57.5. Although the quantity of seed crushed in Tennessee amounted to 92.2 per cent of the production for the state, it should not be understood that such a proportion of the seed actually grown in the state was consumed by the oil mills. The quantity of seed crushed was made up in part by seed shipments from adjoining states.

The quantity of seed crushed during 1905 showed increase over 1900 in all the states except Tennessee, where a loss of 24,828 tons, or 14.8 per cent, was noted, notwithstanding the fact that during the same period the number of establishments had increased 33.3 per cent. This decrease in quantity was due to the falling off of shipments from other states in which newly established mills now consume a part of the supply. This decrease of shipments from other states during the five-year period is clearly brought out by the fact that in 1900 the amount of seed crushed was 66 per cent greater than the amount produced in the state; whereas in 1905 it was 7.8 per cent less.

Table 3 shows for 1900 and 1905, by states and territories, the average cost of cottonseed per ton, the average quantity and value of the several crude products obtained per ton of seed crushed, and the per cent that each forms of the total in weight and value.

MANUFACTURES.

TABLE 3.—AVERAGE COST OF COTTONSEED, AVERAGE QUANTITY AND VALUE OF PRODUCTS PER TON OF

	STATE OR TERRITORY.	Year.	Average cost of cottonseed per ton.	QUANTITY AND VALUE OF PRODUCTS DERIVED FROM ONE TON OF COTTONSEED.					
				Total value.	Crude oil.				
					Gallons.	Pounds.	Per cent of total weight.	Value.	Per cent of total value.
1	United States.....	1905	15.51	\$20.72	40.0	300	15.0	\$9.37	45.2
		1900	11.55	17.11	37.6	282	14.1	8.63	50.4
2	Alabama.....	1905	15.29	21.00	40.0	300	15.0	9.66	46.0
		1900	11.73	17.15	39.0	293	14.6	8.84	51.5
3	Arkansas.....	1905	16.22	20.62	40.1	301	15.1	9.96	48.3
		1900	11.82	16.78	38.0	285	14.3	8.65	51.6
4	Florida.....	1905	15.18	20.59	41.1	308	15.4	9.37	45.5
5	Georgia.....	1905	16.06	21.97	41.4	311	15.6	9.97	45.4
		1900	11.94	17.61	39.0	293	14.6	9.08	51.6
6	Indian Territory.....	1905	12.92	18.16	37.0	276	13.8	7.43	40.9
		1900	11.28	16.89	35.3	265	13.2	7.85	46.5
7	Louisiana.....	1905	14.77	20.71	41.2	309	15.5	9.34	45.1
		1900	11.29	17.52	38.6	290	14.5	8.86	50.6
8	Mississippi.....	1905	16.05	21.74	41.3	310	15.5	10.34	47.6
		1900	11.60	16.90	38.1	285	14.3	8.52	50.4
9	Missouri.....	1905	17.03	19.66	40.5	304	15.2	8.89	45.2
10	North Carolina.....	1905	17.90	23.27	42.3	317	15.9	10.81	46.5
		1900	12.20	17.46	40.8	306	15.3	9.10	52.1
11	Oklahoma.....	1905	12.38	18.40	38.8	291	14.6	7.42	40.3
		1900	9.37	15.52	35.5	266	13.3	7.07	45.5
12	South Carolina.....	1905	17.68	23.21	43.1	323	16.2	10.90	47.0
		1900	13.96	19.43	39.3	295	14.7	9.87	50.8
13	Tennessee.....	1905	16.50	21.60	40.1	301	15.1	10.06	46.6
		1900	10.98	16.26	38.4	288	14.4	8.10	49.8
14	Texas.....	1905	14.38	18.70	37.3	280	14.0	7.83	41.9
		1900	10.92	16.63	35.2	264	13.2	8.22	49.4
15	All other states.....	¹ 1905	19.23	22.90	40.3	302	15.1	11.41	49.8
		² 1900	11.70	17.41	38.4	288	14.4	8.77	50.4

¹Includes establishments distributed as follows: Illinois, 2; Kentucky, 1; and Virginia, 2.²Includes establishments distributed as follows: Florida, 1; Illinois, 1; Kansas, 1; and Missouri, 2.

COTTONSEED PRODUCTS.

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COTTONSEED CRUSHED, AND PER CENT OF EACH TO TOTAL, BY STATES AND TERRITORIES: 1905 AND 1900.

QUANTITY AND VALUE OF PRODUCTS DERIVED FROM ONE TON OF COTTONSEED—continued.											
Meal.				Hulls.				Linters.			
Pounds.	Per cent of total weight.	Value.	Per cent of total value.	Pounds.	Per cent of total weight.	Value.	Per cent of total value.	Pounds.	Per cent of total weight.	Value.	Per cent of total value.
818	40.7	\$8.30	40.1	725	36.2	\$1.67	8.1	35	1.8	\$1.38	6.7
713	35.6	6.46	37.8	943	47.1	1.29	7.5	23	1.2	0.73	4.3
807	40.4	8.35	39.8	719	35.9	1.85	8.8	32	1.6	1.14	5.4
702	35.1	6.25	36.4	932	46.6	1.26	7.4	25	1.3	0.80	4.7
791	39.5	7.78	37.7	708	35.4	1.44	7.0	36	1.8	1.44	7.0
689	34.4	6.01	35.8	954	47.7	1.31	7.8	24	1.2	0.81	4.8
966	48.3	8.67	42.1	585	29.3	1.56	7.6	29	1.4	0.99	4.8
818	40.9	8.56	39.0	713	35.6	2.03	9.2	36	1.8	1.41	6.4
674	33.7	6.30	35.8	974	48.7	1.49	8.4	24	1.2	0.74	4.2
790	39.5	7.80	43.0	770	38.5	1.43	7.9	40	2.0	1.50	8.3
695	34.8	6.92	41.0	960	49.5	1.25	7.4	26	1.3	0.87	5.1
865	43.2	8.79	42.4	650	32.5	1.30	6.3	34	1.7	1.28	6.2
728	36.4	6.83	39.0	912	45.6	1.14	6.5	24	1.2	0.69	3.9
820	41.0	8.40	38.6	713	35.7	1.70	7.8	31	1.5	1.30	6.0
717	35.8	6.63	39.2	938	46.9	1.01	6.0	23	1.1	0.74	4.4
791	39.6	7.94	40.4	740	37.0	1.49	7.6	33	1.6	1.34	6.8
807	40.3	9.30	40.0	718	35.9	1.81	7.8	30	1.5	1.35	5.8
670	33.5	6.31	36.2	969	48.5	1.35	7.7	20	1.0	0.70	4.0
810	40.5	8.10	44.0	710	35.5	1.24	6.7	45	2.2	1.64	8.9
718	35.9	6.20	40.0	940	47.0	1.55	10.0	20	1.0	0.70	4.5
832	42.6	9.32	40.2	675	33.7	1.72	7.4	31	1.6	1.27	5.5
740	37.0	7.47	38.4	913	45.6	1.39	7.2	21	1.1	0.70	3.6
815	40.7	8.15	37.7	749	37.5	1.62	7.5	41	2.0	1.77	8.2
708	35.4	6.21	38.2	949	47.4	1.17	7.2	24	1.2	0.78	4.8
788	39.4	7.75	41.4	780	39.0	1.68	9.0	39	2.0	1.44	7.7
731	36.6	6.31	38.0	947	47.3	1.41	8.5	22	1.1	0.69	4.1
749	37.5	8.06	35.2	802	40.1	2.04	8.9	31	1.5	1.39	6.1
800	40.0	7.04	40.4	868	43.4	1.08	6.2	19	1.0	0.52	3.0

From 1900 to 1905 the average cost per ton of cottonseed consumed increased from \$11.55 to \$15.51, or 34.3 per cent; while the value of the products per ton increased from \$17.11 to \$20.72, or 21.1 per cent. In 1905 the crude oil represented 45.2 per cent of the total value of all products; the meal, 40.1 per cent; the hulls, 8.1 per cent; and the linters, 6.7 per cent. A comparison with the corresponding percentages for 1900 shows that the relative importance of the crude oil product has decreased. This is indicated by a decrease of 5.2 in the percentage which the value of this product forms of the total value. The relative importance of the other products, according to the same test, has increased. Of the total weight of the seed when received at the mill the several products formed

the following proportions in 1905: Crude oil, 15 per cent; meal, 40.7 per cent; hulls, 36.2 per cent; linters, 1.8 per cent. These are increases over the corresponding percentages in 1900 for each product except hulls, for which the percentage shows a decrease of 10.9. As noted before, this decrease in the product of lower proportionate value is taken in part as an indication of the economic development of the industry.

Table 4 shows the number of establishments, the estimated seed crop, the estimated quantity and cost of the seed crushed, the per cent of seed crushed to amount produced, the average quantity crushed per establishment, the total value of the several products and quantity of each manufactured from seed of 1905.

TABLE 4.—ESTIMATED QUANTITY AND COST OF COTTONSEED CRUSHED, PERCENTAGE OF SEED CRUSHED TO AMOUNT PRODUCED, AND ESTIMATED TOTAL VALUE AND QUANTITY OF THE SEVERAL CRUDE PRODUCTS MANUFACTURED, BY STATES AND TERRITORIES: 1905.

STATE OR TERRITORY.	Number of active establishments.	Quantity of seed produced.	COTTONSEED CRUSHED.				PRODUCTS.				
			Tons.	Cost.	Per cent of seed crushed to quantity produced.	Average crush per establishment (tons).	Total value. ¹	Oil (gallons).	Meal and cake (tons).	Hulls (tons).	Linters (pounds).
United States.....	716	5,060,205	3,131,175	\$46,769,630	61.9	4,373	\$66,703,803	125,700,928	1,271,740	1,135,080	109,698,379
Alabama.....	64	592,500	324,772	4,757,910	54.8	5,075	6,814,721	12,990,880	131,046	116,756	10,392,714
Arkansas.....	42	296,388	222,854	3,342,810	75.2	5,306	4,697,766	8,936,445	88,139	78,890	8,022,743
Florida.....	5	33,163	18,798	300,768	56.7	3,760	427,890	772,598	9,079	5,498	545,143
Georgia.....	122	804,088	431,068	7,112,622	53.6	3,533	9,345,495	17,846,215	176,307	153,676	15,518,450
Indian Territory.....	15	167,771	98,224	1,117,789	58.5	6,548	2,016,968	3,634,288	38,798	37,816	3,928,947
Louisiana.....	47	245,662	180,979	2,895,664	73.7	3,851	3,956,770	7,456,335	78,273	58,818	6,153,299
Mississippi.....	86	673,588	482,755	7,482,703	84.2	5,613	10,411,466	19,937,782	197,930	172,102	14,965,401
Missouri.....	4	20,478	19,456	291,840	95.0	4,864	411,071	787,968	7,695	7,199	642,039
North Carolina.....	49	295,209	180,067	3,061,139	61.0	3,675	3,914,566	7,616,834	72,657	64,644	5,402,004
Oklahoma.....	10	156,680	75,390	918,250	48.1	7,539	1,598,908	2,925,132	30,533	26,763	3,392,550
South Carolina.....	94	514,704	254,872	4,396,542	49.5	2,711	5,644,320	10,984,983	108,575	86,019	7,901,030
Tennessee.....	17	133,400	114,508	1,751,972	85.8	6,736	2,498,407	4,591,771	46,662	42,883	4,694,813
Texas.....	157	1,218,784	698,604	8,907,201	57.3	4,450	14,367,982	26,057,929	275,250	272,456	27,245,568
All other states.....	24	7,790	28,828	432,420	370.1	7,207	597,473	1,161,768	10,796	11,560	893,678

¹ Estimated from information as to average prices furnished by the Oil, Paint, and Drug Reporter, New York.

² Includes establishments distributed as follows: Illinois, 2; Kentucky, 1; Virginia, 1.

³ Includes production of Kansas, Kentucky, and Virginia.

The Bureau of the Census does not claim accuracy for the statistics of Table 4, except for the number of establishments and the quantity of linters obtained, but presents the estimates of the other products as approximately correct and as an interesting reference in connection with the study of the cottonseed products industry. The figures for the quantity of linters saved, which are shown by states in the table, were obtained by canvassing the cottonseed-oil mills in connection with the work of securing the statistics of cotton ginned from the crop of 1905. The statistics of seed crushed and of crude products manufactured from the seed crop of 1905 are estimates, computed on the basis of the quantity of linters returned by the oil mills and upon the average quantities of products obtained per ton of seed during the census year 1905.

As shown in Table 4, the cottonseed crop grown in 1905 amounted to 5,060,205 tons, of which 3,131,175

tons, or 61.9 per cent, were crushed by the oil mills, as compared with 53.1 per cent for 1899. Estimating the average quantity for planting purposes at 2 bushels per acre, it will require 90,000 tons to plant 30,000,000 acres, leaving 1,839,030 tons to be utilized by the farmers for fertilizers in the seed form, and for other purposes. The quantity of seed annually exported is about 10,000 tons.

Cottonseed-oil mills may be divided into two classes: (1) Those of large capacity, erected at railway centers, and (2) small cooperative mills, built in towns with scanty railway facilities and depending for seed upon local supply. Each class of mills has its advantages. The larger mill has more competition in securing its seed supply, but on the other hand, it can readily draw upon other localities. The expenses incident to operation and to marketing of product are proportionally less than in the smaller establish-

ment and make it possible to employ expert operators. It can carry the processes of manufacture further, refining its oil, and conducting correlated industries.

An advantage of the small cooperative mill is that the farmers, on account of stock holdings, furnish the seed supply at reasonable prices and guarantee a ready market for the meal and hulls for fertilizing and feeding purposes. In this way freight charges are saved both on the seed and on the more bulky products, leaving only the oil and linters, which constitute but about 17 per cent of the weight of the products obtained from a ton of seed, to be shipped to remote markets.

Possibly the most difficult problem in connection with the cottonseed products industry is the proper storing and preservation of the seed. The lint is almost waterproof and is but little injured in passing from the field to the factory. But not so with the seed, which is very easily injured and reaches the mill

in much worse condition relatively than the lint. In wet seasons this deterioration amounts to a large percentage of the value of the seed, and the products from such damaged seed must be sold for very inferior uses. The value of the oil especially depends upon the condition of the seed when it reaches the mill. Evidently the products manufactured from cottonseed would be more useful and more valuable if it were carefully graded and the good and bad seed kept separate. To accomplish this the cooperation of the grower, ginner, and miller are required. The present tendency to establish small cottonseed-oil mills with ginneries attached is a step in this direction, as the seed may be stored at the time it is removed from the lint.

Table 5 shows the quantity and value of cottonseed, cottonseed oil, and cake and meal exported, by countries to which exported, for the calendar year 1905.

TABLE 5.—QUANTITY AND VALUE OF EXPORTS OF COTTONSEED, COTTONSEED OIL, AND CAKE AND MEAL, BY COUNTRIES TO WHICH EXPORTED, FOR THE CALENDAR YEAR 1905.¹

COUNTRY.	COTTONSEED.		OIL.		CAKE AND MEAL.	
	Pounds.	Value.	Gallons.	Value.	Pounds.	Value.
Total.....	23,769,164	\$257,633	53,368,839	\$15,571,852	1,214,667,922	\$13,597,105
Austria-Hungary.....			6,722,959	1,970,501	672,000	7,400
Belgium.....	863,440	9,484	1,636,050	476,850	31,929,476	351,871
Denmark.....			554,403	154,348	494,038,692	5,419,832
France.....	285,003	3,558	10,282,162	2,952,922	12,381,612	136,218
Germany.....	7,931,757	72,271	5,153,198	1,432,883	399,213,683	4,631,813
Gibraltar.....			93,407	30,791		
Italy.....	1,550	50	4,573,350	1,490,626	23,610	255
Malta, Gozo, etc.....			229,020	76,582		
Netherlands.....	6,358,046	56,584	11,585,847	3,480,853	59,862,982	661,211
Roumania.....			116,870	40,442		
Russia on Black Sea.....					731,640	8,000
Spain.....	5,140	238				
Sweden and Norway:						
Norway.....			283,388	84,798	2,320,415	25,774
Sweden.....			316,860	97,811	1,108,000	14,100
Turkey in Europe.....			32,000	10,420		
United Kingdom.....	5,235,151	51,359	3,333,852	933,418	211,006,141	2,323,391
Bermuda.....			120	51	13,350	176
British Honduras.....			38	13	21,920	248
Nova Scotia, New Brunswick, etc.....			12,402	3,678	871,000	11,277
Quebec, Ontario, Manitoba, etc.....			1,034,483	278,187	353,005	4,458
British Columbia.....			235	103		
Newfoundland and Labrador.....			7,854	2,416		
Costa Rica.....			6,639	2,406	8,948	100
Guatemala.....			2,841	1,424	2,240	26
Honduras.....			2,870	993	4,480	50
Nicaragua.....			3,808	1,537		
Panama.....			59,642	19,423		
Salvador.....			15,837	7,044		
Mexico.....	3,045,920	61,894	3,644,112	866,293	38,525	500
West Indies:						
British.....	4,440	372	347,167	105,659	3,500	52
Cuba.....	1,440	36	304,831	122,487	53,603	688
Danish.....			5,913	1,733		
Dutch.....			3,751	1,266		
French.....			439,505	127,612	4,600	70
Haiti.....			6,069	2,616		
Santo Domingo.....			202,173	71,405		
Argentina.....	2,430	174	73,632	24,778		
Bolivia.....			2,600	1,069		
Brazil.....	6,712	349	671,962	193,696		
Chile.....			75,518	29,316		
Colombia.....			11,733	3,051		
Ecuador.....			50	17		
Guiana:						
British.....			134,075	39,122		
Dutch.....			10,447	3,210		
French.....			24,571	8,794	4,500	95
Paraguay.....			100	53		
Peru.....	1,900	65	2,070	697		

¹ Compiled by Bureau of Statistics, Department of Commerce and Labor.

TABLE 5.—QUANTITY AND VALUE OF EXPORTS OF COTTONSEED, COTTONSEED OIL, AND CAKE AND MEAL, BY COUNTRIES TO WHICH EXPORTED, FOR THE CALENDAR YEAR 1905¹—Continued.

COUNTRY.	COTTONSEED.		OIL.		CAKE AND MEAL.	
	Pounds.	Value.	Gallons.	Value.	Pounds.	Value.
Uruguay.....			257,195	\$87,563		
Venezuela.....			13,120	5,076		
Chinese Empire.....	100	\$15	608	190		
East Indies:						
British India.....	135	9	1,550	510		
Straits Settlements.....			3,000	1,003		
Hongkong.....			18,522	5,215		
Japan.....			85,247	23,283		
Turkey in Asia.....			24,081	8,241		
British Australasia.....			70,154	20,884		
British Africa:						
West.....			6,330	1,841		
South.....	25,500	1,150	122,146	45,456		
East.....			3,000	1,088		
French Africa.....			459,837	127,775		
Madagascar.....			500	155		
Portuguese Africa.....	500	25	1,000	361		
Turkey in Africa—Egypt.....			241,925	77,622		
All other Africa.....			40,210	12,195		

¹ Compiled by Bureau of Statistics, Department of Commerce and Labor.

As shown in Table 5, the total exports of cottonseed for the calendar year 1905 was 23,769,164 pounds, or 11,885 tons of 2,000 pounds, valued at \$257,633, or \$21.68 per ton.

Of the oil exported during the year ending December 31, 1905, 44,913,366 gallons, or 84.2 per cent, went to Europe. France received 10,282,162 gallons, or 22.9 per cent, of the European consignment and the Netherlands 11,585,847 gallons, or 25.8 per cent, which was 21.7 per cent of the total exports. Europe received 83.3 per cent of the total exports of oil for the year ending June 30, 1900. Of this amount France took 34.8 per cent and the Netherlands 24.1 per cent.

The value of cottonseed oil as a food product was not known in the early days of its manufacture. In 1881 it was discovered that cottonseed oil mixed with animal fats made an acceptable substitute for lard. From

that time the domestic demand greatly increased. In 1880 about 30 per cent of the cottonseed oil manufactured in the United States was consumed at home, while in 1905 it amounted to about 60 per cent.

The quantity of linters exported during the year 1904 was 33,105,730 pounds, equivalent to 66,211 bales of 500 pounds, valued at \$1,555,653, or 4.7 cents per pound. The amount of this cotton exported during the six months period ending June 30, 1905, was 18,106,939 pounds, equivalent to 36,214 bales of 500 pounds. About 98 per cent of this cotton exported is taken by Europe, as follows: Germany, 66 per cent; Belgium, 16; Netherlands, 8; France, 4; United Kingdom, 3; and all others, 1.

Table 6 shows the quantity, value, and value per unit of cottonseed and cottonseed products exported by calendar years from 1896 to 1905, inclusive.

TABLE 6.—QUANTITY AND VALUE OF EXPORTS OF COTTONSEED AND COTTONSEED PRODUCTS, AND VALUE PER UNIT OF MEASURE, BY CALENDAR YEARS, FROM 1896 TO 1905, INCLUSIVE.¹

CALENDAR YEAR.	COTTONSEED.			OIL.			CAKE AND MEAL.			LINTERS.		
	Tons.	Value.	Value per ton.	Gallons.	Value.	Value per gallon.	Tons.	Value.	Value per ton.	Pounds.	Value.	Value per pound.
1896.....	15,359	\$205,032	\$13.35	21,597,918	\$5,735,912	\$0.27	262,034	\$4,873,905	\$18.60	(?)		
1897.....	13,336	159,771	11.98	33,181,492	8,422,059	0.25	357,116	6,248,044	17.50	*3,995,799	\$185,318	\$0.05
1898.....	14,866	193,211	13.00	46,730,114	11,465,357	0.25	512,196	8,778,691	17.14	15,003,113	555,307	0.04
1899.....	22,245	254,814	11.45	49,969,420	12,476,135	0.25	587,103	10,566,074	18.00	16,744,631	597,770	0.04
1900.....	23,925	382,526	15.99	44,536,867	15,051,140	0.34	568,950	11,895,712	20.91	31,901,340	1,673,479	0.05
1901.....	22,904	374,595	16.36	47,173,214	16,367,893	0.35	597,253	12,920,295	21.63	22,528,353	945,663	0.04
1902.....	29,888	591,239	19.78	34,899,620	14,151,765	0.41	567,715	13,361,199	23.54	29,464,859	975,614	0.03
1903.....	17,974	363,813	20.24	27,865,212	10,931,540	0.39	467,928	10,529,909	22.50	25,225,091	916,019	0.04
1904.....	7,483	165,622	22.13	35,368,898	11,695,656	0.33	493,571	11,115,369	22.52	33,105,730	1,555,653	0.05
1905.....	11,885	257,633	21.68	53,368,839	15,571,862	0.29	607,334	13,597,105	22.39	*18,106,939	722,150	0.04

¹ Compiled by the Bureau of Statistics, Department of Commerce and Labor.² Not stated separately prior to 1897.³ Six months ending December 31.⁴ Six months ending June 30, included subsequently with cotton.

Table 6 shows a remarkable increase in the exports of cottonseed products during the decade. The quantity of oil exported increased from 21,597,918 gallons in 1896 to 53,368,839 gallons in 1905, or 147.1 per cent. The value of oil reached 41 cents per gallon in 1902, but in 1905 it was only 29 cents, or but 2 cents more

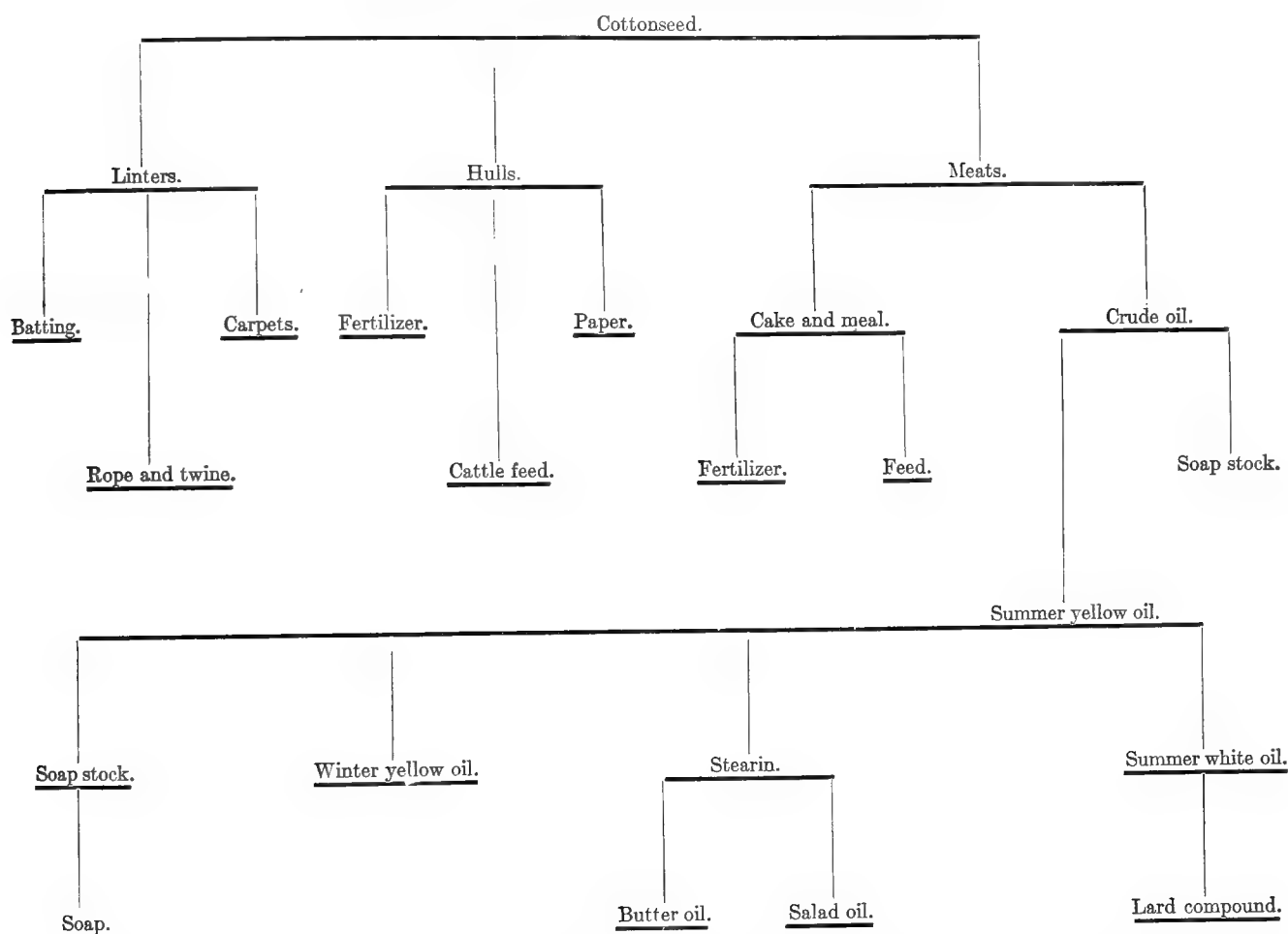
than in 1896. The quantity of cake and meal exported during this period increased from 262,034 tons of 2,000 pounds each in 1896 to 607,334 tons in 1905, or 131.8 per cent; while the price increased \$3.79 per ton, or 20.3 per cent. The export of linters increased from 3,995,799 pounds in 1897 to 33,105,730 pounds in 1904,

or 728.6 per cent. The variations in the value of oil per gallon may be attributed in part to the fact that its value is determined largely not by the necessity for its use as a food, but by its availability in price and quality as a substitute for certain food products. On the other hand, the gradual increase in the export price of meal and cake is due probably to its recognized merit as a feedstuff, as well as its value as a fertilizer. Exports of cottonseed hulls are insignificant, their value in 1905 amounting to only \$223.

DESCRIPTION AND USES OF COTTONSEED PRODUCTS.

Since the transfer of raw material into manufactured products is always of interest, there is here presented a brief history of cottonseed from the time it reaches the oil mill until separated into products such as fertilizers, lint, cattle feed, paper stock, and oils. A graphic illustration of this development is given in the following diagram:

Diagram showing products obtainable from cottonseed.



Waste.—At the oil mill the seed is screened for the purpose of removing sand, bolls, leaves, sticks, and other foreign substances. The quantity of these foreign particles varies in different localities, according to the care used in picking the cotton and the natural condition of the seed. This quantity also varies with soils and seasons; for example, seed from cotton grown on light sandy soil carries considerable sand, especially in rainy seasons. The average waste resulting from screening was 127 pounds per ton in 1905, leaving for the further process 1,873 pounds for each 2,000 pounds of seed entering the mill.

Linters.—According to the character of the machine used in ginning and the variety of seed, more or less short cotton adheres to the seed when it comes from the ginnery. Sea-island cottonseed is entirely freed from lint by the first ginning and is therefore not

reginned at the oil mill before being crushed for oil extraction. With upland cottonseed the quantity of lint which remains after the first ginning varies, some carrying considerable lint while other seed approaches very closely to the condition of the sea-island variety. The quantity of linters obtained from reginning seed during the season of 1899–1900 was 57,272,053 pounds, which was 1.3 per cent of the fiber crop of that season; for 1905–6 the quantity was 109,698,379 pounds, or 2.1 per cent of the fiber crop. This product has become an important part of the cotton crop and its uses are being rapidly extended. From it are manufactured cotton batting, carpets, cheap yarns, rope, twine, and it is also used for upholstering purposes.

Hulls.—For a long time cottonseed hulls had no value except as a fuel for the engines of the oil mills. It was soon discovered, however, that the ashes result-

ing from burning hulls had fertilizing qualities and this fact gave the ashes a commercial value. Later it was developed that a mixture of ground hulls and cottonseed meal makes one of the best feeds known to the stock raising and dairy industries. The demand for cottonseed hulls is now so great that it is doubtful whether any mill in the United States used them as a fuel during the season of 1905-6. The mixing of feed by oil mills for the purpose of utilizing hulls to the greatest advantage is not yet as extensive as the mixing of fertilizers, though several mills reported feed mixing at the census of 1905. These hulls are also used in the manufacture of paper stock and of certain household utensils.

Meal and cake.—The great demand for cottonseed meal and cake is for stock feeding purposes and as a fertilizer or in the manufacture of fertilizers. It is interesting in connection with this fact to note that, only thirty years ago, the state inspector of fertilizers for Georgia refused to certify to a fertilizer as standard because it contained cottonseed meal. It is now recognized by manufacturers of fertilizers as one of the most important sources of nitrogen. For the purpose of obtaining a maximum value for meal, many oil mills have fertilizer mixing plants attached, in which cottonseed meal is mixed with acid phosphate and kainit in such proportions as are required. The value of fertilizers mixed at cottonseed-oil mills is included in the total value of products in Table 1. The mixing of hulls and meal as a feed and the use of meal as a fertilizer has brought about the very general method of grinding the cake into meal both for domestic and foreign consumption.

The demand for cottonseed meal as a stock food is rapidly increasing in this country and abroad, and the mills in Great Britain are operated more for the meal than for the oil. Every farmer and dairyman there carries in stock a supply of cake and meal in proportion to the number of cattle, horses, and sheep owned. A mixture of cottonseed meal and corn chops makes a satisfactory feed stuff for hogs, and the meal is a good egg producing food for poultry. Some interest is now felt in the possibility of utilizing cottonseed meal for human food. It is cheaper than flour, and is very nutritious. The confectionery trade has discovered that the kernels of cottonseed when parched make a good substitute for peanuts in the manufacture of peanut brittle.

Oil.—The real advancement of the last twenty-five years in the cottonseed-oil industry has been made by the oil refinery. While there have been many improvements in the machinery of the crude-oil mills, the process is to-day practically what it was a quarter of a century ago, but tremendous strides have been made in the improvement of the refining methods, and the products obtained at this time are quite superior to those formerly produced.

The first process of refining produces from crude cottonseed oil a clear brilliant yellow oil, which, at 50 degrees centigrade, has a specific gravity of 0.92. Owing to the deterioration of the seed and to inferior methods of manufacture, the first refining of crude oil does not always produce oil of the same grade. This oil, known as "summer yellow" oil, has been classified by the trade as choice, prime, off, and soap oil, the difference in these grades being in the color and flavor. Choice oil is a light lemon-colored oil, without any appearance of red, and is mild and neutral in flavor. Prime oil is slightly darker in color and sweet in flavor. These two grades are used for edible purposes. The off and soap grades are reddish in color and the flavor is very poor. The quality and amount of oil produced depend largely upon the condition of the seed. The quantity varies from 85 to 35 per cent of choice and prime oil and from 15 to 65 per cent of off and soap oil. After being submitted to various processes, such as bleaching, to make it white, and pressing, to extract the stearin, summer yellow oil forms an important basis for a number of different products. With the improvements in refining methods made in the past few years, new uses for cottonseed oil have been developed, among the most important of which is the manufacture of lard compounds, a mixture of hog lard, oleo stearin, and refined cottonseed oil, making a most palatable and economical food. So large a percentage of our home consumption of cottonseed oil is taken by the lard compound makers that the value of the oil varies with the supply of hog lard. The home consumption of cottonseed oil is larger this year than for previous years, on account of the strong statistical position of the lard market. A very high-class food product, known as "white cottolene," is secured by mixing oleo stearin with specially refined cottonseed oil. It is also used in making salad oils and in the manufacture of the olive oil of commerce.

Cottonseed oil is sometimes used in olive growing countries in "setting" the olives, a quantity of oil being poured over the ripe fruit after it has been placed in vats. This softens the fruit, hastens the flow of oil, and materially increases the yield. Cottonseed oil is also used in packing sardines, in the oleomargarine industry, and to some extent for miner's oil, for tempering, for oiling heavy tool-cutting machines, for mixing with putty, and for rough painting. The difficulty encountered in its general use for painting purposes is its lack of drying qualities.

Soap stock is found as a settling from crude oil and as a residue in the refining processes. In addition to soaps there are manufactured from this residue glycerin, candle stock, olein, etc. It is of course impossible to elaborate upon or even to fully enumerate all of the products derivable from cottonseed oil, but the diagram on page 549 gives a general idea of what is being accomplished.

TOBACCO

TOBACCO.

In this report the manufacture of tobacco is divided into two principal groups, namely, cigars and cigarettes, and chewing and smoking tobacco and snuff. At the censuses of 1890 and 1900 the stemming and rehandling of tobacco was treated as a manufacturing industry, but in 1905 this class was excluded as not coming within the scope of a census of manufactures confined to the so-called factory system. Census statistics of the manufacture of tobacco appeared first at the census of 1810. The classifications were "American segars," "Spanish segars," and "tobacco and snuff." No totals were presented for the entire country, but the returns for Pennsylvania gave a total of 3,898,999 Spanish segars, valued at \$26,550, 29,061,000 American segars, valued at \$44,253, and 2,186,757 pounds of tobacco and snuff, having a value of \$410,910. For Virginia were returned 2,726,713 pounds of tobacco and snuff, of a value of \$469,000. At the census of 1820 various scattered items, without

aggregates, were presented, by counties, in the several states in which the industry existed, the classification being "tobacco manufactured." At the census of 1840, out of 30 states and territories the manufacture of tobacco was reported for 28, the total value of products as shown in the recapitulation being \$5,819,568, of which Virginia reported \$2,406,671, with a capital of \$1,526,080. The returns at the census of 1850 were for "tobacconists;" the value of products was reported as \$13,491,147, of which \$5,157,652 was from Virginia; the number of establishments in the United States was 1,418; the capital \$5,008,295; the number of wage-earners 14,236, of which 1,975 were females; the cost of labor \$2,420,208, and of materials \$7,341,728.

THE COMBINED INDUSTRY.

In Table 1 are given the statistics of the combined industry from 1860 to 1905, with percentages of increase.

TABLE 1.—TOBACCO—COMPARATIVE SUMMARY, WITH PER CENT OF INCREASE: 1860 TO 1905.

	CENSUS.						PER CENT OF INCREASE.				
	1905	1900	1890	1880	1870	1860	1900 to 1905	1890 to 1900	1880 to 1890	1870 to 1880	1860 to 1870
Number of establishments.....	16,828	14,959	11,351	7,622	5,204	2,104	12.5	31.8	48.9	46.5	147.3
Capital.....	\$323,983,501	\$111,517,318	\$90,359,143	\$38,905,950	\$24,924,330	\$12,529,960	190.5	23.4	132.3	56.1	98.9
Salaried officials, clerks, etc., number.....	9,236	7,836	112,633	(2)	(2)	(2)	17.9	³ 38.0	.....	.....	.....
Salaries.....	\$8,800,434	\$8,593,077	\$9,913,842	(2)	(2)	(2)	2.4	³ 13.3	.....	.....	.....
Wage-earners, average number.....	159,408	132,526	116,790	86,053	47,848	26,856	20.3	13.5	35.7	79.8	78.2
Total wages.....	\$62,640,303	\$47,975,331	\$43,422,218	\$24,883,586	\$14,315,342	\$6,102,648	30.6	10.5	74.5	73.8	134.6
Men 16 years and over.....	85,691	76,218	74,394	54,985	31,997	23,135	12.4	2.5	35.3	71.8	38.3
Wages.....	\$42,410,703	\$34,317,025	\$33,449,587	(2)	(2)	(2)	23.6	2.6	.....	.....	.....
Women 16 years and over.....	66,301	49,330	34,778	19,884	7,794	3,721	34.4	41.8	74.9	155.2	109.5
Wages.....	\$19,130,982	\$12,888,356	\$9,215,365	(2)	(2)	(2)	48.4	39.8	.....	.....	.....
Children under 16 years.....	7,416	6,978	7,618	11,184	8,057	(2)	6.3	³ 8.4	31.9	38.8	.....
Wages.....	\$1,098,618	\$769,950	\$757,266	(2)	(2)	(2)	42.7	1.7	.....	.....	.....
Miscellaneous expenses.....	\$80,145,016	\$78,915,293	\$37,136,812	(4)	(4)	(4)	1.6	112.5	.....	.....	.....
Cost of materials used.....	\$126,088,608	\$92,866,542	\$79,491,209	\$63,974,905	\$34,656,607	\$16,536,300	35.8	16.8	24.3	84.6	109.6
Value of products.....	\$331,117,681	\$263,713,173	\$195,536,862	\$116,772,631	\$71,762,044	\$30,889,313	25.6	34.9	67.5	62.7	132.3

¹ Includes proprietors and firm members, with their salaries; number only reported in 1900 and 1905, but not included in this table.

² Not reported separately.

³ Decrease.

⁴ Not reported.

There has been an absolute increase in all important particulars at every census since 1860. During the forty-five years the value of products has increased \$300,228,368, or nearly tenfold. It will be observed that the increase in cost of materials used between 1900 and 1905 was much greater than in value of products. This is attributable in part to a reduced production of tobacco. According to statistics of the Department of Agriculture the average farm price per pound during 1900 was 6.6 cents; in 1904 it was 8.1 cents, an increase of 1.5 cents over 1900. The increase was specially marked in Connecticut, Massachusetts, Pennsylvania, New York, North Carolina, Virginia, and South Carolina. The average price in Tennessee, and a few other states, however, showed a considerable decrease.

The large increase in capital between 1900 and 1905 occurs principally in the item of live capital, which includes materials and products on hand, cash and sundries, etc. Important changes were made in the ownership of some of the principal establishments between the two censuses, and it is possible that under the reorganization larger quantities of materials and products were on hand at the time of making reports for the census of 1905, or there was a change in the method of reporting this item at the two enumerations.

The decrease in the number shown for salaried officials, clerks, etc., and in their salaries, between 1890 and 1900 was not actual, because proprietors and firm members were included in 1890 and excluded in 1900. If the proprietors and firm members reported in 1900

were to be added to the salaried officials, clerks, etc., the total would show a large increase over 1890. The only other decrease was in average number of children wage-earners; this occurred between 1880 and 1890 and again between 1890 and 1900.

Table 2 presents the principal statistics of tobacco manufactures for the two branches of the industry and for each part of each branch separately, as reported at the census of 1905.

TABLE 2.—TOBACCO—SUMMARY, BY INDUSTRIES, WITH PER CENT OF AGGREGATE: 1905.

	Aggregate.	CIGARS AND CIGARETTES.			CHEWING AND SMOKING TOBACCO AND SNUFF.			PER CENT OF AGGREGATE.	
		Total.	Cigars.	Cigarettes.	Total.	Chewing and smoking tobacco.	Snuff.	Cigars and cigarettes.	Chewing and smoking tobacco and snuff.
Number of establishments.....	16,828	16,395	16,240	155	433	392	41	97.4	2.6
Capital.....	\$323,983,501	\$145,135,945	\$123,166,997	\$21,968,948	\$178,847,556	\$154,913,703	\$23,933,853	44.8	55.2
Salaried officials, clerks, etc., number.....	9,236	7,129	6,816	313	2,107	2,001	106	77.2	22.8
Salaries.....	\$8,800,434	\$6,343,682	\$6,062,742	\$280,940	\$2,456,752	\$2,303,381	\$153,371	72.1	27.9
Wage-earners, average number.....	159,408	135,418	130,949	4,469	23,990	23,044	946	85.0	15.0
Total wages.....	\$62,640,303	\$55,864,978	\$54,494,682	\$1,370,296	\$6,775,325	\$6,389,730	\$385,595	89.2	10.8
Men 16 years and over.....	85,691	72,970	71,374	1,596	12,721	12,119	602	85.2	14.8
Wages.....	\$42,410,703	\$38,198,064	\$37,586,110	\$611,954	\$4,212,639	\$3,924,095	\$287,944	90.1	9.9
Women 16 years and over.....	66,301	57,174	54,426	2,748	9,127	8,812	315	86.2	13.8
Wages.....	\$19,130,982	\$16,889,901	\$16,153,659	\$736,242	\$2,241,081	\$2,148,469	\$92,612	88.3	11.7
Children under 16 years.....	7,416	5,274	5,149	125	2,142	2,113	29	71.1	28.9
Wages.....	\$1,098,618	\$777,013	\$754,913	\$22,100	\$321,605	\$316,566	\$5,039	70.7	29.3
Miscellaneous expenses.....	\$80,145,016	\$41,591,222	\$35,913,039	\$5,678,183	\$38,553,794	\$36,389,655	\$2,164,139	51.9	48.1
Cost of materials used.....	\$126,088,608	\$81,134,561	\$74,801,482	\$6,333,079	\$44,954,047	\$42,787,242	\$2,166,805	64.3	35.7
Value of products, total.....	\$331,117,681	\$214,350,051	\$197,543,775	\$16,806,276	\$116,767,630	\$109,998,550	\$6,769,080	64.7	35.3
Cigars ¹	\$198,186,372	\$198,185,222	\$197,353,977	\$831,245	\$1,150	.....	\$1,150	100.0	(²)
Cigarettes.....	\$16,354,803	\$15,523,772	\$94,692	\$15,429,080	\$831,031	\$831,031	.....	94.9	5.1
Chewing and smoking tobacco.....	\$110,090,940	\$634,261	\$93,180	\$541,081	\$109,456,679	\$109,147,576	\$309,103	0.6	99.4
Snuff.....	\$6,473,225	\$1,926	\$1,926	.....	\$6,471,299	\$12,472	\$6,458,827	(²)	100.0
All other products.....	\$12,341	\$4,870	.....	\$4,870	\$7,471	\$7,471	.....	39.5	60.5

¹ Includes value of stems and clippings sold as such.

² Less than one-tenth of 1 per cent.

Of the aggregate value of products, cigars and cigarettes formed 64.7 per cent and chewing and smoking tobacco and snuff 35.3 per cent.

The segregation of the products into their various kinds, whether principal or subsidiary, discloses the fact that while all but the merest fraction in value of the cigars were manufactured in shops classified under "tobacco, cigars and cigarettes," 5.1 per cent in value of the cigarettes were produced by establishments making chewing and smoking tobacco and snuff as their principal products. A few establishments reported cigars with cigarettes, or snuff with chewing and smoking tobacco, in such a way that the values of the different products can not be segregated. The establishments so reporting, however, were so insignificant both in number and size that their inclusion in one class or the other does not affect the total to any appreciable degree.

The great but natural difference in the number of establishments reported for the two branches of the industry was due in part to the fact that cigars and cigarettes were to a considerable extent manufactured in small establishments, whereas chewing and smoking tobacco and snuff were more largely made in factories of considerable size. As may be computed from the statistics, the average capital invested per establishment for the cigar and cigarette branch of the industry was only \$8,852, while for the other branch it was \$413,043. The average number of wage-earners per

establishment was 8 for those manufacturing cigars and cigarettes and 55 for those manufacturing chewing and smoking tobacco and snuff.

The cost of materials used in the combined industry, as reported at the census of 1905, and divided into raw and partially manufactured, is shown in Table 3, with the percentage each item is of the total. Materials purchased in raw state represent leaf tobacco; those purchased in partially manufactured form include snuff flour, scraps, licorice, sugar, "all other materials" (boxes, cartons, labels, paste, etc.), and "mill supplies."

TABLE 3.—Tobacco—cost of materials used, by kind and industry, with per cent of total: 1905.

KIND.	CIGARS AND CIGARETTES.		CHEWING AND SMOKING TOBACCO AND SNUFF.	
	Amount.	Per cent of total.	Amount.	Per cent of total.
Total.....	\$81,134,561	100.0	\$44,954,047	100.0
Purchased in raw state.....	69,291,011	85.4	31,347,252	69.7
Purchased in partially manufactured form ¹	11,073,719	13.7	12,943,787	28.8
Fuel.....	324,996	0.4	444,243	1.0
Rent of power and heat.....	117,761	0.1	26,144	0.1
Freight.....	327,074	0.4	192,621	0.4

¹ Includes "all other materials" and "mill supplies." These are shown separately in Tables 12 and 13.

That the proportion of cost of materials "purchased in raw state" of total cost was greater for cigars and

cigarettes than for chewing and smoking tobacco and snuff is due to the licorice, sugar, and other partially manufactured materials used in the preparation of chewing tobacco.

The following tabular statement gives the acreage and production of tobacco for the years 1900 to 1904, as compiled from figures presented in the reports of the Department of Agriculture:

Acreage and quantity of tobacco grown: 1900 to 1904.

[Compiled from Yearbook of the Department of Agriculture.]

CALENDAR YEAR.	Acre.	Pounds.
1904.....	806,409	660,460,739
1903.....	1,037,735	815,972,425
1902.....	1,030,734	821,823,963
1901.....	1,039,199	818,953,373
1900.....	1,046,427	814,345,341

The acreage for 1904 shows a large decrease from the figures for the preceding years, and the production a corresponding decrease. As a result of this falling off in production, the price of the commodity has risen considerably, so that the aggregate value of the crop of 1904 was approximately as large as in the preceding year.

Table 4, prepared from the report of the Commis-

sioner of Internal Revenue, shows for each calendar year from 1900 to 1904 the quantity of leaf tobacco used in the manufacture of cigars, of cigarettes, and of chewing and smoking tobacco and snuff.

TABLE 4.—Quantity of leaf tobacco used in manufactures: 1900 to 1904.

[From the report of the Commissioner of Internal Revenue, 1905.]

	QUANTITY, IN POUNDS, FOR CALENDAR YEAR—				
	1904	1903	1902	1901	1900
Total.....	448,511,583	443,353,679	427,553,964	398,039,646	379,162,881
Cigars.....	127,669,253	130,055,898	117,389,167	116,388,262	105,395,189
Cigarettes.....	13,350,776	12,539,571	11,816,159	11,079,704	13,084,037
Tobacco and snuff.....	307,491,554	300,758,210	298,348,638	270,571,680	260,683,658

The increase in the quantity used between 1900 and 1904 for all branches of the tobacco industry was 18.3 per cent; that for cigars was 21.1 per cent; for cigarettes, 2 per cent; and for tobacco and snuff, 18 per cent.

Table 5 is a compilation of imports and exports of tobacco, manufactured and unmanufactured, by quantity and value, for each of the fiscal years from 1900 to 1905.

TABLE 5.—TOBACCO—IMPORTS AND EXPORTS OF DOMESTIC AND FOREIGN: 1900 TO 1905.¹

	FOR YEAR ENDING JUNE 30—					
	1905		1904		1903	
	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.
Imports:						
Unmanufactured.....	33,288,378	\$18,038,677	31,162,636	\$16,939,487	34,016,956	\$17,234,915
Manufactured—						
Cigars, cigarettes, and cheroots.....	807,621	4,028,107	684,498	3,054,011	588,395	3,271,956
All other.....		79,062		79,848		72,249
Exports:						
Domestic—						
Unmanufactured.....	334,302,091	29,800,816	311,971,831	29,640,812	368,184,084	35,250,893
Manufactured—						
Cigars (thousands).....	2,118	59,653	1,953	36,545	1,966	46,962
Cigarettes (thousands).....	1,837,803	2,934,376	1,528,406	2,320,112	1,456,452	2,281,531
Chewing and smoking tobacco and snuff.....		2,696,174		2,686,062		2,865,303
Foreign—						
Unmanufactured.....	3,680,016	1,600,360	5,525,835	2,121,176	3,734,840	1,722,517
Manufactured—						
Cigars, cigarettes, and cheroots.....	14,018	31,099	13,963	27,676	14,054	28,281
All other.....		1,036		1,171		4,668
	FOR YEAR ENDING JUNE 30—					
	1902		1901		1900	
	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.
Imports:						
Unmanufactured.....	29,428,837	\$15,211,671	26,851,253	\$16,290,387	19,619,627	\$13,297,223
Manufactured—						
Cigars, cigarettes, and cheroots.....	450,675	2,411,783	481,371	2,401,273	460,559	2,299,923
All other.....		83,039		78,866		64,214
Exports:						
Domestic—						
Unmanufactured.....	301,007,365	27,103,996	315,787,782	27,656,475	344,655,697	29,422,371
Manufactured—						
Cigars (thousands).....	1,795	34,632	1,908	53,174	2,579	74,623
Cigarettes (thousands).....	1,273,614	2,104,893	1,052,390	1,877,255	1,164,356	2,290,876
Chewing and smoking tobacco and snuff.....		3,529,328		3,162,174		3,644,642
Foreign—						
Unmanufactured.....	2,191,152	1,272,262	1,978,383	1,179,364	1,903,011	1,016,683
Manufactured—						
Cigars, cigarettes, and cheroots.....	15,869	29,059	30,021	36,364	11,510	27,326
All other.....		4,219		34,697		5,078

¹ Bureau of Statistics, Department of Commerce and Labor, "Commerce and Navigation of the United States."

The imports of unmanufactured tobacco for 1905—that is, leaf and stems and trimmings—increased over 1900 in quantity 13,668,751 pounds, or 69.7 per cent; and in value \$4,741,454, or 35.7 per cent. The reexports of unmanufactured increased in quantity 1,777,005 pounds, or 93.4 per cent; and in value \$583,677, or 57.4 per cent. The increase in the importation of cigars, cigarettes, and cheroots from 1900 to 1905 was in pounds 347,062, or 75.4 per cent; and in value \$1,728,184, or 75.1 per cent. The reexports increased in pounds 2,508, or 21.8 per cent; and in value \$3,773, or 13.8 per cent.

Of the exports, unmanufactured tobacco decreased slightly in quantity, but increased slightly in value. For cigars and chewing and smoking tobacco and snuff, a considerable decrease is shown, but the exports of cigarettes increased in thousands 673,447, or 57.8 per cent; and in value \$643,500, or 28.1 per cent.

Of the leaf imported in 1905 suitable for cigar wrappers, 6,764,861 pounds, or 95.2 per cent, were credited to the Netherlands, having been grown principally on the island of Sumatra. Cuba furnished about 80 per cent of the other leaf, or almost double that in 1900, the remainder coming mostly from Turkey—due to the popularity of Turkish tobacco for cigarettes—and from Germany. In 1900 the imports from European and Asiatic Turkey amounted to 831,189 pounds, which in 1905 had increased to 2,353,266, or nearly twofold.

Of the total exports of unmanufactured tobacco for 1905, the United Kingdom received 101,785,290 pounds, valued at \$9,526,582. The other countries receiving large quantities of unmanufactured American tobacco were Germany, with 47,766,984 pounds, valued at \$4,869,483; France, with 40,534,487 pounds,

valued at \$2,914,420; Italy, with 30,446,427 pounds, valued at \$2,513,651; Belgium, with 24,000,379 pounds, valued at \$1,977,552; and the Netherlands, with 21,473,876 pounds, valued at \$1,411,638. Spain also received a large quantity of unmanufactured American tobacco, and small amounts were exported to various other European countries.

Of the 18,723,329 pounds of the unmanufactured staple exported to foreign countries in North America, Canada received 12,981,550. A comparatively small amount of tobacco leaf grown in the United States was sent to the South American republics, principally Argentina and British Guiana. Japan and the Chinese Empire furnished practically the only markets in Asia for unmanufactured American tobacco during 1905. The exports to Japan during that year amounted to 6,629,017 pounds, valued at \$940,079, which is more than double the amount for 1900. During the five-year period the exports to the Chinese Empire increased from 459,469 pounds, valued at \$44,473, to 3,198,436 pounds, valued at \$459,859. The quantity increased about sixfold, and the value more than ninefold. Considerable quantities of leaf were also sent to British Australasia, the only division of Oceania which imported American tobacco in 1905. African ports received, during 1905, 11,814,328 pounds, of which British Africa imported 7,486,600 pounds, valued at \$702,554; and French Africa, 2,685,718 pounds, valued at \$206,711.

CIGARS AND CIGARETTES.

Table 6 is a comparative summary of the statistics for the manufacture of cigars and cigarettes for the census years 1860 to 1905, with percentages of increase.

TABLE 6.—CIGARS AND CIGARETTES—COMPARATIVE SUMMARY, WITH PER CENT OF INCREASE: 1860 TO 1905.

	CENSUS.						PER CENT OF INCREASE.				
	1905	1900	1890	1880	1870	1860	1900 to 1905	1890 to 1900	1880 to 1890	1870 to 1880	1860 to 1870
Number of establishments.....	16,395	14,522	10,956	7,145	4,631	1,478	12.9	32.5	53.3	54.3	213.3
Capital.....	\$145,135,945	\$67,660,748	\$59,517,827	\$21,698,549	\$11,368,516	\$3,035,555	114.5	13.8	174.3	90.9	274.5
Salaries officials, clerks, etc., number.....	7,129	4,468	111,156	(²)	(²)	(¹)	60.0	59.9			
Salaries.....	\$6,343,682	\$4,709,006	\$8,292,929	(²)	(²)	(¹)	34.7	43.2			
Wage-earners, average number.....	135,418	103,365	87,000	53,297	26,049	7,997	31.0	18.8	63.2	104.6	225.7
Total wages.....	\$55,864,978	\$40,865,510	\$36,475,060	\$18,464,562	\$9,098,709	\$2,531,354	36.7	12.0	97.5	102.9	259.4
Men 16 years and over.....	72,970	62,094	50,452	40,099	21,409	7,266	17.5	4.4	48.3	87.3	194.6
Wages.....	\$38,198,064	\$29,908,987	\$28,866,765	(²)	(²)	(¹)	27.7	3.6			
Women 16 years and over.....	57,174	37,740	24,214	9,108	2,615	731	51.5	5.9	105.9	248.3	257.7
Wages.....	\$16,889,901	\$10,499,436	\$7,174,765	(²)	(²)	(¹)	60.9	46.3			
Children under 16 years.....	5,274	3,531	3,334	4,090	2,025	(¹)	49.4	5.9	18.5	102.0	
Wages.....	\$777,013	\$457,087	\$433,530	(²)	(²)	(¹)	70.0	5.4			
Miscellaneous expenses.....	\$41,591,222	\$31,381,588	\$17,673,063	(¹)	(¹)	(¹)	32.5	77.6			
Cost of materials used.....	\$81,134,561	\$57,828,255	\$50,298,960	\$29,577,833	\$13,047,370	\$3,511,312	40.3	15.0	70.1	126.7	271.6
Value of products.....	\$214,350,051	\$159,958,811	\$129,693,275	\$63,979,575	\$33,373,685	\$9,068,778	34.0	23.3	102.7	91.7	268.0

¹ Includes proprietors and firm members with their salaries; number only reported in 1900 and 1905, but not included in this table.

² Not reported separately.

³ Decrease.

⁴ Not reported.

The great development of the cigar and cigarette manufacturing industry appears from the figures shown in Table 6. In the forty-five years since the census of 1860 the value of products has increased from \$9,068,778 to \$214,350,051, an average annual increase of over \$4,500,000. The returns of the various

censuses indicate correspondingly rapid increases in nearly all of the various comparable items.

Table 7 presents comparative statistics for cigars and cigarettes as returned at the censuses of 1900 and 1905, by states, territories, and geographic divisions.

TABLE 7.—CIGARS AND CIGARETTES—COMPARATIVE SUMMARY, BY STATES, TERRITORIES, AND GEOGRAPHIC DIVISIONS: 1905 AND 1900.

STATE OR TERRITORY.	Census.	Number of establishments.	Capital.	SALARIED OFFICIALS, CLERKS, ETC.		WAGE-EARNERS AND WAGES.		Miscellaneous expenses.	Cost of materials used.	Value of products.
				Number.	Salaries.	Average number.	Wages.			
United States.....	1905 1900	16,395 14,522	\$145,135,945 67,660,748	7,129 4,498	\$6,343,682 4,709,006	135,418 103,395	\$55,864,978 40,865,510	\$41,591,222 31,381,588	\$81,134,561 57,828,255	\$214,350,051 159,958,811
North Atlantic division.....	1905 1900	7,537 6,903	83,869,718 39,548,786	3,786 2,372	3,449,697 2,617,675	75,104 57,107	29,950,122 22,911,026	23,879,891 18,457,906	43,748,601 33,049,646	118,467,029 91,447,044
Maine.....	1905 1900	64 54	136,675 134,076	8 10	5,276 5,630	244 182	122,810 86,161	55,757 37,053	181,524 98,643	449,563 284,817
New Hampshire.....	1905 1900	45 42	202,508 147,199	3 4	1,809 2,150	342 284	198,235 146,342	71,571 46,314	261,102 275,569	569,980 549,698
Vermont.....	1905 1900	23 21	48,449 42,941	3 2	2,652 1,728	77 52	39,715 26,226	19,679 11,369	45,591 30,700	127,492 80,222
Massachusetts.....	1905 1900	348 331	2,342,002 2,358,501	164 133	199,851 153,576	3,575 2,752	2,331,449 1,749,676	912,247 594,410	2,491,623 1,910,617	6,577,810 5,298,390
Rhode Island.....	1905 1900	38 34	183,910 121,321	4 14	5,616 11,700	217 159	128,817 65,515	50,246 37,496	135,019 92,054	358,124 292,872
Connecticut.....	1905 1900	226 216	1,173,806 863,591	73 26	70,208 28,955	1,267 1,032	765,542 570,841	290,775 207,841	852,251 672,340	2,349,710 1,775,829
New York.....	1905 1900	3,475 3,055	45,760,207 20,733,667	1,973 1,259	1,888,359 1,563,367	32,989 26,051	14,228,994 11,157,020	12,753,625 10,655,023	23,431,395 17,380,949	60,623,617 49,028,479
New Jersey.....	1905 1900	544 486	11,939,680 1,311,122	234 38	231,184 30,574	6,073 1,640	1,864,763 705,158	1,915,733 419,729	3,071,130 1,017,886	8,331,611 2,647,595
Pennsylvania.....	1905 1900	2,774 2,664	22,082,481 13,836,368	1,324 886	1,044,682 819,995	30,320 25,045	10,278,800 8,404,687	7,810,258 6,448,701	15,278,906 11,570,888	39,079,122 31,483,141
South Atlantic division.....	1905 1900	826 778	30,740,816 8,347,316	1,238 601	1,158,036 695,076	19,582 12,662	8,631,470 4,969,531	6,816,514 4,655,189	12,127,858 7,429,887	32,435,381 20,096,337
Delaware.....	1905 1900	19 25	99,522 77,229	4 1	2,610 624	113 106	42,747 39,786	28,799 20,331	62,604 38,302	160,676 121,872
Maryland.....	1905 1900	340 381	5,017,841 1,518,861	166 155	124,573 105,809	2,844 2,308	1,033,703 741,355	1,130,004 457,747	1,634,305 1,038,952	4,648,003 2,840,319
District of Columbia.....	1905 1900	25 28	77,034 44,678	2	1,050	60 58	30,413 27,566	13,779 14,747	32,853 42,287	98,318 108,101
Virginia.....	1905 1900	95 89	12,480,175 780,261	171 126	140,657 196,092	4,043 2,595	984,233 586,115	2,323,487 2,480,961	1,977,069 1,192,583	6,105,936 4,843,641
West Virginia.....	1905 1900	79 72	541,970 351,017	31 23	26,186 15,602	1,194 910	580,541 332,223	382,806 334,628	405,424 250,490	1,505,429 1,060,126
North Carolina.....	1905 1900	16 16	4,048,017 169,980	65 22	58,909 16,830	970 190	227,291 37,734	445,442 68,809	1,187,579 82,053	2,599,248 229,844
South Carolina.....	1905 1900	7 6	699,296 12,510	25 1	22,874 900	446 29	74,113 9,400	64,866 4,614	108,289 9,647	257,078 31,550
Georgia.....	1905 1900	37 34	392,998 55,673	28 7	15,823 2,795	255 106	81,323 35,438	60,588 19,839	124,180 51,418	296,417 125,058
Florida.....	1905 1900	208 127	7,383,963 5,337,107	746 266	765,354 356,424	9,657 6,370	5,577,106 3,159,914	2,366,743 1,254,513	6,595,555 4,724,255	16,764,276 10,735,826
North Central division.....	1905 1900	6,824 5,969	24,243,811 16,373,146	1,733 1,261	1,440,380 1,157,004	34,178 28,237	14,365,645 10,903,561	9,186,570 7,102,405	19,249,596 14,523,846	52,565,625 40,811,745
Ohio.....	1905 1900	1,311 1,129	8,154,358 4,579,159	504 372	417,309 363,170	10,175 9,046	3,541,820 3,016,072	2,726,413 2,613,678	4,753,047 3,717,825	13,241,230 11,239,824
Indiana.....	1905 1900	536 474	1,368,000 808,889	100 69	74,956 53,942	2,521 1,910	988,393 694,786	542,063 395,975	1,497,856 918,360	3,637,078 2,537,077
Illinois.....	1905 1900	1,788 1,489	5,157,197 3,200,934	333 219	262,540 187,366	6,675 5,221	3,463,018 2,452,674	1,795,083 1,242,252	4,109,626 3,116,597	11,669,485 8,741,483
Michigan.....	1905 1900	696 599	2,462,314 1,931,635	282 206	231,448 195,541	5,491 4,109	2,160,501 1,446,238	1,516,429 999,927	3,067,010 1,956,781	7,995,230 5,498,982
Wisconsin.....	1905 1900	757 622	2,072,889 1,597,914	131 68	107,625 76,569	2,505 1,969	1,086,203 799,281	695,448 436,842	1,617,341 1,224,417	4,372,139 3,255,676
Minnesota.....	1905 1900	349 305	1,461,508 1,218,805	115 91	119,626 83,848	1,779 1,559	836,968 660,444	601,720 338,643	1,097,278 949,616	3,200,933 2,457,942
Iowa.....	1905 1900	440 408	1,489,923 1,264,097	137 126	117,883 117,006	2,040 1,856	838,699 700,777	556,129 412,818	1,199,642 948,991	3,187,522 2,576,384
Missouri.....	1905 1900	544 580	1,035,807 990,758	87 78	72,091 59,167	1,685 1,511	871,447 694,655	421,721 397,776	1,072,429 1,026,984	3,047,760 2,745,986
North Dakota.....	1905 1900	27 26	34,672 23,536			30 33	16,019 16,932	11,097 9,259	29,200 25,982	76,442 69,419
South Dakota.....	1905 1900	47 27	124,674 84,460	5 9	4,620 5,355	167 129	86,936 59,894	48,933 26,976	127,336 68,924	327,817 197,155
Nebraska.....	1905 1900	157 141	370,172 264,873	16 9	15,216 6,536	516 399	237,531 171,109	132,415 99,680	338,183 285,561	899,867 702,037
Kansas.....	1905 1900	172 169	512,237 408,086	23 14	17,066 9,504	594 495	238,110 190,699	139,119 128,569	340,650 283,808	910,121 789,780

MANUFACTURES.

TABLE 7.—CIGARS AND CIGARETTES—COMPARATIVE SUMMARY, BY STATES, TERRITORIES, AND GEOGRAPHIC DIVISIONS: 1905 AND 1900—Continued.

STATE OR TERRITORY.	Cen- sus.	Num- ber of estab- lish- ments.	Capital.	SALARIED OFFICIALS, CLERKS, ETC.		WAGE-EARNERS AND WAGES.		Miscel- laneous expenses.	Cost of materials used.	Value of products.
				Number.	Salaries.	Average number.	Wages.			
South Central division.....	1905 1900	432 390	\$4,056,670 2,091,182	248 154	\$175,933 151,997	3,459 3,271	\$1,221,011 1,125,475	\$769,841 669,679	\$1,831,643 1,486,319	\$4,759,407 4,126,530
Kentucky.....	1905 1900	184 180	1,422,335 1,105,303	75 81	70,966 67,677	1,258 1,349	465,823 388,064	307,506 299,081	713,881 514,943	1,796,049 1,506,559
Tennessee.....	1905 1900	40 35	134,267 90,547	11 5	9,196 4,360	234 161	127,546 80,228	63,439 35,708	134,622 118,738	404,241 290,647
Alabama.....	1905 1900	32 26	128,101 116,145	13 18	10,370 13,530	169 186	77,263 88,395	32,803 30,049	74,354 94,227	244,370 278,044
Mississippi ¹	1905	4	6,175	1	225	6	2,648	1,369	3,707	9,310
Louisiana.....	1905 1900	22 34	2,025,645 510,433	136 27	68,594 48,240	1,335 1,200	329,648 407,087	244,283 213,588	569,854 506,258	1,427,803 1,407,083
Arkansas.....	1905 1900	20 19	23,053 20,241	2 1	1,028 600	55 37	35,184 15,648	25,230 10,486	85,142 26,565	227,234 67,400
Indian Territory ²	1905	8	6,905	.....	.....	7	2,958	2,065	5,487	14,375
Oklahoma.....	1905 1900	39 17	48,622 21,338	.....	.....	59 35	24,543 12,700	16,217 7,101	48,231 22,382	116,094 50,838
Texas.....	1905 1900	83 79	261,567 227,175	10 22	15,554 17,590	336 303	155,398 133,353	76,929 70,666	196,365 203,206	519,931 525,959
Western division.....	1905 1900	776 479	2,224,930 1,297,998	124 80	119,636 87,254	3,095 1,994	1,687,730 953,412	938,406 494,683	2,176,861 1,334,837	6,122,609 3,467,555
Montana.....	1905 1900	44 30	71,124 68,594	1	1,200	95 72	66,017 47,650	40,335 18,674	105,032 69,578	271,281 173,739
Idaho.....	1905 1900	17 6	35,986 11,543	3	1,320	42 9	29,736 5,285	11,816 3,111	42,532 9,026	104,471 22,684
Wyoming.....	1905 1900	12 5	27,796 14,675	1	400	27 16	15,534 8,370	6,096 4,463	14,664 12,123	49,105 31,783
Colorado.....	1905 1900	117 86	299,467 199,656	23 23	27,740 19,980	481 337	308,327 223,316	116,932 72,523	336,305 234,094	979,051 679,947
New Mexico.....	1905 1900	7 4	22,245 11,800	.....	400	18 9	10,703 5,352	4,697 2,498	12,442 6,786	36,731 18,850
Arizona.....	1905 1900	11 7	78,045 42,726	5 4	8,480 7,900	73 44	45,520 29,810	28,104 18,904	37,869 25,354	144,970 88,264
Utah.....	1905 1900	27 15	106,388 46,123	9	6,925	140 68	108,533 38,499	32,506 13,479	110,722 49,928	297,918 124,487
Nevada ²	1905	5	23,952	1	180	13	11,760	6,352	12,198	41,076
Washington.....	³ 1905 1900	103 57	191,806 88,724	4 4	3,900 2,820	258 133	176,725 68,855	82,353 38,936	228,730 126,910	610,078 293,839
Oregon.....	1905 1900	54 38	123,476 58,655	5 1	3,950 1,200	163 71	92,242 32,961	51,548 19,312	179,173 60,019	395,597 146,401
California.....	1905 1900	379 231	1,244,645 755,502	72 47	65,541 54,954	1,785 1,235	822,633 493,314	557,667 302,783	1,097,194 741,019	3,192,331 1,887,561
Not distributed by states or divisions.....	⁴ 1900	3	2,320	.....	.....	4	1,905	1,226	3,620	9,600

¹ No establishments reported in 1900.² Included in "not distributed by states or divisions" in 1900.³ Includes 1 establishment in Alaska.⁴ Includes establishments distributed as follows: Indian Territory, 1; Nevada, 2.

At the census of 1905 every state and territory except Alaska reported three or more establishments engaged in the manufacture of cigars and cigarettes. The territory named reported but one establishment, the statistics for which are included with those for the state of Washington to avoid disclosing individual operations. In 1900 the state of Mississippi and the territory of Alaska were not represented in this industry, and the statistics for Indian Territory and Nevada, reporting less than three establishments each, were combined under "not distributed by states or divisions."

A noteworthy feature of the table is that in nearly every state and territory there was an increase in the number of establishments. The exceptions are Delaware, Maryland, District of Columbia, Louisiana, and Missouri, in all of which the number decreased, and

North Carolina, where it remained stationary. This increase is contrary to the general trend of manufacturing industries, which is toward centralization, and is accounted for by the neighborhood character of the industry.

The North Atlantic division led with value of products equal to 55.3 per cent of the total for the country. The next in importance was the North Central division, which produced 24.5 per cent of the total. The South Atlantic, Western, and South Central divisions produced, respectively, 15.1 per cent, 2.9 per cent, and 2.2 per cent of the total of all cigar and cigarette manufactures. Each one of the divisions shows large increases since 1900.

With the exception of Alabama, the District of Columbia, and Texas all the states and territories show increases in value of products since 1900. In

1905 there were 5 states reporting products valued at \$10,000,000 and over. In the order of importance these states and the values of their products were: New York, \$60,623,617, an increase since 1900 of \$11,595,138, or 23.6 per cent; Pennsylvania, \$39,079,122, an increase of \$7,595,981, or 24.1 per cent; Florida, \$16,764,276, an increase of \$6,028,450, or 56.2 per cent; Ohio, \$13,241,230, an increase of \$2,001,406, or 17.8 per cent; and Illinois, \$11,669,485, an increase of \$2,928,002, or 33.5 per cent. The same states led in 1900, and with the exception of Ohio and Florida their relative standing has not changed.

A noteworthy increase since 1900 is shown in New Jersey, where the products increased in value

\$5,684,016, or 214.7 per cent. This was due chiefly to the establishment of a number of large cigar factories, most of which were owned by one corporation. Owing to this remarkable increase New Jersey advanced from twelfth place in 1900 to sixth at the census of 1905. Michigan, Massachusetts, and Virginia were, respectively, seventh, eighth, and ninth in rank. The combined products of the 9 leading states at the census of 1905 were valued at \$170,388,317, or 79.5 per cent of the total for the country.

Table 8 shows, by states and territories, the quantity of tobacco used and the number of each kind of cigars and cigarettes manufactured in the calendar year 1904.

TABLE 8.—CIGARS AND CIGARETTES—QUANTITY OF MATERIALS AND PRODUCTS, BY STATES AND TERRITORIES: 1904.

[Compiled from the annual report of the Commissioner of Internal Revenue, 1905.]

STATE OR TERRITORY.	Tobacco used in both cigars and cigarettes (pounds).	Cigars and cigarettes manufactured (number).	CIGARS.				CIGARETTES.			
			Weighing more than 3 pounds per thousand.		Weighing not more than 3 pounds per thousand.		Weighing more than 3 pounds per thousand.		Weighing not more than 3 pounds per thousand.	
			Tobacco used (pounds).	Number.	Tobacco used (pounds).	Number.	Tobacco used (pounds).	Number.	Tobacco used (pounds).	Number.
United States.....	141,020,029	10,810,663,164	124,623,057	6,640,482,483	3,046,196	736,187,259	53,494	7,103,193	13,297,282	3,426,890,229
Alabama.....	116,621	6,577,782	116,621	6,577,782						
Alaska.....	3,550	168,800	3,550	168,800						
Arkansas.....	59,467	2,746,305	59,467	2,746,305						
Arizona.....	45,939	2,312,074	45,939	2,312,074						
California.....	1,615,376	144,217,233	1,442,400	71,937,398	175	60,000	46	5,300	172,755	72,214,535
Colorado.....	419,476	20,667,475	419,436	20,653,875					40	13,600
Connecticut.....	1,058,613	58,216,018	1,040,812	52,844,698	2,124	458,450			15,677	4,912,870
Delaware.....	112,961	6,093,527	112,961	6,093,527						
District of Columbia.....	45,620	2,289,088	45,620	2,289,088						
Florida.....	5,581,979	279,450,949	5,565,729	275,940,549	118	23,650			16,132	3,486,750
Georgia.....	232,274	11,535,705	231,443	11,276,205					831	259,500
Hawaii.....	4,556	194,014	4,556	194,014						
Idaho.....	53,587	2,487,113	53,587	2,487,113						
Illinois.....	5,983,123	321,852,767	5,954,402	314,637,477	2,382	508,000	31	1,900	26,308	6,705,390
Indian Territory.....	12,757	604,525	12,757	604,525						
Indiana.....	2,268,664	115,516,671	2,268,664	115,516,671						
Iowa.....	1,863,001	94,287,146	1,861,727	94,032,346	1,274	254,800				
Kansas.....	476,063	25,619,207	476,063	25,619,207						
Kentucky.....	1,218,294	62,108,746	1,217,391	61,880,746	903	228,000				
Louisiana.....	1,642,686	320,212,875	754,039	40,944,955	10	2,000			888,637	279,265,920
Maine.....	201,241	10,695,425	201,241	10,695,425						
Maryland.....	3,342,561	386,487,346	2,283,716	122,701,846	1,058,336	263,643,700			509	141,800
Massachusetts.....	3,346,476	180,671,648	3,289,963	165,541,328	33	11,300	5,434	416,830	51,046	14,702,190
Michigan.....	4,857,595	252,954,096	4,857,554	252,926,396	41	27,700				
Minnesota.....	1,438,136	72,711,917	1,436,605	72,406,417			35	5,000	1,496	300,500
Mississippi.....	8,529	397,450	8,529	397,450						
Missouri.....	1,650,174	85,054,725	1,647,115	84,315,555	75	15,000	10	1,000	2,974	723,170
Montana.....	102,246	4,783,776	102,246	4,783,776						
Nebraska.....	492,048	25,637,804	492,048	25,637,804						
Nevada.....	12,340	643,033	12,340	643,033						
New Hampshire.....	220,622	11,984,896	220,622	11,984,896						
New Jersey.....	9,772,053	429,297,042	9,704,247	413,481,947	62,501	14,097,100			5,305	1,717,995
New Mexico.....	17,869	1,363,495	16,994	822,875					875	540,620
New York.....	32,858,082	3,565,910,253	24,719,942	1,320,633,477	385,773	98,399,289	47,127	6,507,653	7,705,240	2,140,369,834
North Carolina.....	475,290	75,940,290	298,581	14,751,790					176,709	61,188,500
North Dakota.....	41,674	2,018,920	41,674	2,018,920						
Ohio.....	11,014,957	617,686,027	10,974,658	609,391,597	40,164	8,081,230			135	213,200
Oklahoma.....	60,340	2,902,160	60,340	2,902,160						
Oregon.....	163,486	7,973,171	163,483	7,972,171	3	1,000				
Pennsylvania.....	33,310,787	1,945,585,045	33,065,697	1,892,274,290	4,698	1,342,600	811	165,510	239,581	51,802,645
Rhode Island.....	176,307	9,702,273	176,307	9,702,273						
South Carolina.....	347,690	15,372,380	347,675	15,369,380	15	3,000				
South Dakota.....	159,480	8,268,759	159,480	8,268,759						
Tennessee.....	183,026	10,263,650	183,026	10,263,650						
Texas.....	259,901	14,387,490	259,046	13,861,700					855	525,790
Utah.....	108,676	4,833,190	108,676	4,833,190						
Vermont.....	60,305	3,307,380	60,305	3,307,380						
Virginia.....	9,098,685	1,338,285,179	3,619,002	201,468,819	1,487,541	349,023,940			3,992,142	787,792,420
Washington.....	232,844	11,473,855	232,814	11,467,355	30	6,500				
West Virginia.....	1,883,340	118,789,802	1,883,340	118,789,802						
Wisconsin.....	2,288,864	117,141,180	2,288,829	117,128,180					35	13,000
Wyoming.....	19,798	981,487	19,798	981,487						

The tobacco used during 1904 exceeded in quantity that used in 1900 by 22,540,803 pounds, and the number of cigars and cigarettes produced was more by 1,375,350,438.

For internal revenue taxation, cigars and cigarettes are divided into two classes according to weight, those weighing not more than 3 pounds per thousand being subject to a lower rate of taxation than those weighing more. During the period covered by this report the tax rates were \$3 per thousand for cigars or cigarettes weighing over 3 pounds per thousand, 54 cents per thousand for cigars weighing not more than 3 pounds per thousand, and \$1.08 per thousand for cigarettes weighing not more than 3 pounds per thousand (more than \$2 value per thousand). By far the greater number of cigars manufactured weigh over 3 pounds per thousand, while the reverse is true of cigarettes. Of the 141,020,029 pounds of tobacco used in the manufacture of cigars and cigarettes during 1904, 127,669,253 pounds were consumed in the production of 7,376,669,742 cigars and 13,350,776 pounds in the production of 3,433,993,422 cigarettes, an average of 17.3 pounds per thousand for cigars and 3.9 pounds per thousand for cigarettes. Eliminating from the calculations the little cigars, which are a distinct type, the average quantity of tobacco required to produce 1,000 cigars was 18.8 pounds. Pennsylvania led in the number of large cigars manufactured, while New York stood second, Ohio third, New Jersey fourth, Illinois fifth, and Florida sixth.

The states of Maryland and Virginia produced 83.2 per cent of all little cigars made during the calendar year 1904, while 85.5 per cent of the cigarettes were made in New York and Virginia.

The following tabular statement, prepared from the reports of the Commissioner of Internal Revenue, gives the numbers of cigars and cigarettes withdrawn from warehouses for consumption and tax paid for each of the fiscal years from 1900 to 1905:

Cigars and cigarettes—number withdrawn for consumption: 1900 to 1905.

[Compiled from the reports of the Commissioner of Internal Revenue.]

YEAR ENDING JUNE 30—	Total (number).	Cigars (number).	Cigarettes (number).
1905.....	10,965,970,880	7,589,337,207	3,376,633,673
1904.....	10,639,420,641	7,404,316,770	3,235,103,871
1903.....	10,468,464,071	7,426,890,403	3,041,573,668
1902.....	9,516,118,432	6,864,499,625	2,651,618,797
1901.....	8,732,508,237	6,455,438,419	2,277,069,818
1900.....	8,602,070,166	5,963,170,381	2,639,899,785

The consumption of cigars and cigarettes has increased 2,362,900,714, or 27.5 per cent, since 1900. Of this increase, that of cigars was 1,626,166,826, or 27.3 per cent; and of cigarettes, 736,733,888, or 27.9 per cent. The number of cigars consumed increased steadily, as shown by the reports of the Commissioner of Internal Revenue, from 991,535,934 in 1869 to 7,589,337,207 in 1905, or nearly sevenfold, while the total population of the country increased during the same period only a little over twofold.

CHEWING AND SMOKING TOBACCO AND SNUFF.

The statistics shown in the following tables embrace the manufacture of plug, fine cut, and scrap chewing tobacco, pipe and other smoking tobacco, and snuff. The main statistics, as presented at each census from 1860 to 1905, with percentages of increase, are shown in Table 9.

TABLE 9.—CHEWING AND SMOKING TOBACCO AND SNUFF—COMPARATIVE SUMMARY, WITH PER CENT OF INCREASE: 1860 TO 1905.

	CENSUS.						PER CENT OF INCREASE.				
	1905	1900	1890	1880	1870	1860	1900 to 1905	1890 to 1900	1880 to 1890	1870 to 1880	1860 to 1870
Number of establishments.....	433	437	395	477	573	626	10.9	10.6	117.2	116.8	18.5
Capital.....	\$178,847,556	\$43,856,570	\$30,841,316	\$17,207,401	\$13,555,814	\$9,494,405	307.8	42.2	79.2	26.9	42.8
Salaried officials, clerks, etc., number.....	2,107	3,368	21,477	(²)	(³)	(³)	137.4	128.0	.....	.....	.....
Salaries.....	\$2,456,752	\$3,884,071	\$1,620,913	(³)	(³)	(³)	136.7	139.6	.....	.....	.....
Wage-earners, average number.....	23,990	29,161	29,790	32,756	21,799	18,859	117.7	12.1	19.1	50.3	15.6
Total wages.....	\$6,775,325	\$7,109,821	\$6,947,158	\$6,419,024	\$5,216,633	\$3,571,294	14.7	2.3	8.2	23.0	46.1
Men 16 years and over.....	12,721	14,124	14,942	14,886	10,588	15,869	19.9	15.5	0.4	40.6	133.3
Wages.....	\$4,212,639	\$4,408,038	\$4,582,822	(⁴)	(⁴)	(³)	14.4	13.8	.....	.....	.....
Women 16 years and over.....	9,127	11,590	10,564	10,776	5,179	2,990	121.3	9.7	12.0	108.1	73.2
Wages.....	\$2,241,081	\$2,388,920	\$2,040,600	(³)	(³)	(³)	16.2	17.1	.....	.....	.....
Children under 16 years.....	2,142	3,447	4,284	7,094	6,032	(³)	137.9	119.5	139.6	17.6	.....
Wages.....	\$321,605	\$312,863	\$323,736	(³)	(³)	(³)	16.2	17.1	.....	.....	.....
Miscellaneous expenses.....	\$38,553,794	\$47,533,705	\$19,463,749	(⁴)	(⁴)	(⁴)	118.9	144.2	.....	.....	.....
Cost of materials used.....	\$44,954,047	\$35,038,287	\$29,192,249	\$34,397,072	\$21,609,237	\$13,024,988	28.3	20.0	115.1	59.2	65.9
Value of products.....	\$116,767,630	\$103,754,362	\$65,843,587	\$52,793,056	\$38,388,359	\$21,820,535	12.5	57.6	24.7	37.5	75.9

¹ Decrease.

² Includes proprietors and firm members, with their salaries; number only reported in 1900 and 1905, but not included in this table.

³ Not reported separately.

⁴ Not reported.

Following the general trend of concentration, the number of establishments in this branch of the tobacco industry has slightly decreased since 1900. There are decreases, likewise, in all particulars except capital, the wages of children, the cost of materials used, and value of products. As in the case of the cigar and cigarette branch of the industry, the very large increase indicated in capital from 1900 to 1905 is al-

most entirely due to increase in "cash and sundries," which may be attributed to difference in the methods of reporting this item at the two censuses.

The decrease shown in average number of wage-earners may be attributable to several causes. One large plant in Jersey City and a number of smaller establishments elsewhere have been closed since 1900. Improved methods of manufacture and of administra-

tion may have led in part to the diminution in average number of wage-earners, and therefore in wages paid; while a more careful attention to details in the collection of statistics at the census of 1905 may have resulted in the ascertainment of a truer average number. It is noteworthy that the relative decrease in number of women and children was greater than in number of men.

During the forty-five years shown in Table 9 the capital and products have steadily increased, but since 1880 the total average number of wage-earners

has steadily declined. There was, however, an increase from 1890 to 1900 in average number of women. Since 1870 the decrease in average number of children has been 3,890, or 64.5 per cent.

The decrease in the total for miscellaneous expenses is due, in part, to the reduction in the internal revenue tax since 1900.

Table 10 presents comparative statistics for 1900 and 1905 of establishments engaged in the manufacture of chewing and smoking tobacco and snuff, by states and territories and by geographic divisions.

TABLE 10.—CHEWING AND SMOKING TOBACCO AND SNUFF COMPARATIVE SUMMARY, BY STATES, TERRITORIES, AND GEOGRAPHIC DIVISIONS: 1905 AND 1900.

STATE OR TERRITORY.	Census.	Number of establishments.	Capital.	SALARIED OFFICIALS, CLERKS, ETC.		WAGE-EARNERS AND WAGES.		Miscellaneous expenses.	Cost of materials used.	Value of products.
				Number.	Salaries.	Average number.	Wages.			
United States.....	1905	433	\$178,847,556	2,107	\$2,456,752	23,990	\$6,775,325	\$38,553,794	\$44,954,047	\$116,767,630
	1900	437	43,886,570	3,368	3,884,071	29,161	7,109,821	47,533,705	35,038,287	103,754,362
North Atlantic division.....	1905	112	17,906,324	191	207,036	1,820	653,077	3,084,710	3,204,152	9,448,326
	1900	74	10,215,267	376	426,508	3,232	975,294	5,197,110	4,581,425	13,667,877
New York.....	1905	68	8,034,743	93	84,818	957	317,513	1,642,599	1,808,923	4,973,314
	1900	42	1,757,687	137	188,629	1,020	345,704	2,032,836	1,734,072	4,632,101
New Jersey.....	1905	10	8,582,781	44	50,062	435	176,366	930,491	737,323	2,656,798
	1900	12	6,692,041	204	197,814	1,955	527,195	2,713,031	2,424,108	7,788,379
Pennsylvania.....	1905	34	1,288,800	54	72,156	428	159,198	511,620	657,906	1,818,214
	1900	20	1,765,539	35	40,065	257	102,395	451,243	423,245	1,247,397
South Atlantic division.....	1905	98	64,981,744	955	1,057,514	11,645	2,551,816	14,966,228	17,074,503	44,559,302
	1900	158	16,662,651	1,148	1,371,925	14,784	2,595,433	14,154,924	11,285,700	52,745,719
Maryland ¹	1900	5	1,805,611	120	259,624	2,002	564,272	3,233,312	2,496,107	7,054,159
Virginia.....	1905	48	10,997,474	350	378,598	3,888	845,006	3,186,481	4,686,516	10,662,268
	1900	69	5,728,357	509	486,135	6,061	1,082,226	4,069,746	4,082,291	10,707,766
West Virginia ¹	1900	4	2,253,775	50	49,118	318	79,765	659,763	477,253	1,362,978
North Carolina.....	1905	39	32,028,980	469	525,888	6,323	1,230,088	9,174,247	8,961,772	25,488,721
	1900	80	6,874,908	469	577,048	6,403	869,170	6,192,103	4,230,049	13,620,816
Not distributed by states.....	² 1905	11	21,955,290	136	153,028	1,434	476,722	2,605,500	3,426,215	8,388,313
North Central division.....	1905	118	66,228,008	620	757,757	6,793	2,556,987	14,510,501	18,037,970	45,767,206
	1900	103	11,761,845	1,190	1,577,714	7,008	2,453,063	19,907,862	12,953,427	39,571,775
Ohio.....	1905	18	7,492,386	118	115,649	1,000	370,596	2,381,568	2,746,892	7,247,292
	1900	19	2,081,858	162	242,606	1,087	389,881	3,001,133	1,917,219	5,752,853
Indiana.....	1905	16	118,065	24	21,188	147	51,654	95,466	83,125	267,543
	1900	11	17,190	4	1,500	28	8,490	23,054	16,078	58,230
Illinois.....	1905	37	3,945,235	38	52,637	796	275,310	1,853,588	1,885,172	4,392,352
	1900	30	908,481	87	127,728	671	217,034	1,549,724	1,072,500	3,167,552
Michigan.....	1905	10	1,684,501	123	143,568	937	306,615	1,328,739	1,780,476	3,868,729
	1900	8	894,400	156	202,689	1,173	322,817	1,935,032	1,174,039	3,746,045
Wisconsin.....	1905	10	1,080,367	78	93,596	305	109,545	843,120	568,907	1,973,775
	1900	6	717,732	30	53,420	300	103,958	845,656	472,735	1,632,354
Minnesota.....	1905	3	7,091	1	600	1	485	800	1,044	4,421
	1900	3	5,895	1	600	3	1,434	1,447	4,527	13,700
Iowa ³	1905	11	108,841	19	8,628	32	8,449	43,385	80,082	171,502
Missouri.....	1905	17	51,784,817	220	322,491	3,574	1,434,021	7,961,304	10,889,403	27,836,422
	1900	22	7,020,479	742	741,291	3,720	1,402,549	12,511,008	8,255,857	25,101,446
Not distributed by states.....	⁴ 1905	3	6,705	8	7,880	1	312	2,531	2,869	5,170
	⁵ 1900	4	115,810	8	7,880	26	6,900	40,808	40,472	99,595
South Central division.....	1905	94	26,951,375	307	384,230	3,376	923,072	5,425,099	6,016,320	15,502,236
	1900	97	5,119,082	633	678,224	4,086	1,073,681	8,200,059	6,159,134	17,573,191
Kentucky.....	1905	54	21,268,822	222	300,357	2,711	760,063	4,637,741	5,200,595	13,117,000
	1900	59	3,485,793	493	524,758	3,187	850,018	7,182,022	5,221,257	14,948,192
Tennessee.....	1905	37	5,659,448	85	83,873	654	159,884	781,349	801,364	2,355,514
	1900	35	1,318,414	106	108,241	615	152,043	557,149	516,369	1,541,475
Louisiana ⁶	1900	3	314,875	34	45,225	284	71,620	460,888	421,508	1,083,524
Texas ⁷	1905	3	23,105	11	3,125	11	3,125	6,009	14,361	29,722
Not distributed by states or divisions.....	⁸ 1905	11	2,780,105	34	50,215	356	90,373	567,256	621,102	1,510,560
	⁹ 1900	5	97,725	21	29,700	51	12,350	73,750	58,601	195,800

¹ Included in "not distributed by states" in 1905.

² Includes establishments distributed as follows: Delaware, 1; Florida, 1; Georgia, 1; Maryland, 5; West Virginia, 3.

³ Included in "not distributed by states" in 1900.

⁴ Includes establishments distributed as follows: Kansas, 2; Nebraska, 1.

⁵ Includes establishments distributed as follows: Iowa, 2; Nebraska, 2.

⁶ Included in "not distributed by states or divisions" in 1905.

⁷ No establishments reported in 1900.

⁸ Includes establishments distributed as follows: Arizona, 3; California, 2; Colorado, 2; Louisiana, 3; Massachusetts, 1.

⁹ Includes establishments distributed as follows: Alabama, 1; California, 1; Colorado, 2; Massachusetts, 1.

Increases in value of products of 36 per cent and 15.7 per cent, respectively, are shown for the South Atlantic and the North Central divisions. There was a notable increase in North Carolina, \$11,867,905, or 87.1 per cent. Of the states for which separate figures are given for both census years in these two divisions, Virginia and Minnesota alone reported decreases.

The North Atlantic division shows a large decrease in value of products, and a slight decrease is also shown in the South Central division. The large decline in production in the North Atlantic group took place entirely in New Jersey, which decreased from \$7,788,379 in 1900 to \$2,656,798 at the census of 1905, due to the closing of one very large factory in Jersey City.

In the South Central division a decrease was reported from Kentucky. The statistics for three establishments in Louisiana were shown for 1900, but for 1905 they are necessarily included in the group of establishments "not distributed by states or divisions" to avoid disclosure of individual operations. This change accounts for a considerable portion of the apparent net decrease in the division.

The reports of the Commissioner of Internal Revenue present information concerning the kinds and quantities of materials used in this industry, and the amount of chewing and smoking tobacco and snuff produced. From these reports Table 11 has been compiled for the calendar year 1904.

TABLE 11.—CHEWING AND SMOKING TOBACCO AND SNUFF—QUANTITY OF MATERIALS AND PRODUCTS, BY STATES AND TERRITORIES: 1904.

[Compiled from the annual report of the Commissioner of Internal Revenue, 1905.]

MATERIALS.

STATE OR TERRITORY.	Total.	Unstemmed leaf.	Stemmed leaf.	Scraps.	In process.	Stems.	Licorice.	Sugar.	Other materials.
	<i>Pounds.</i>	<i>Pounds.</i>	<i>Pounds.</i>	<i>Pounds.</i>	<i>Pounds.</i>	<i>Pounds.</i>	<i>Pounds.</i>	<i>Pounds.</i>	<i>Pounds.</i>
United States.....	393,672,980	190,863,894	75,283,716	32,607,967	1,127,749	8,735,977	37,039,094	30,108,536	17,906,047
Arizona.....	23,017	9,069	10,169	3,779					
Arkansas.....	1,357	55		1,155	147				
California.....	220,876	150,586	2,340	29,145	15,289	200	8,144	4,184	10,988
Colorado.....	65,455			65,455					
Connecticut.....	33,824	739	670	32,209	68			3	135
Delaware.....	5,926,406	5,233,581				692,825			
District of Columbia.....	2,626			1,888		738			
Florida.....	26,014	185	60	25,769					
Georgia.....	4,409	227		3,018	175				989
Idaho.....	1,774			1,774					
Illinois.....	15,308,824	9,027,642	1,331,649	829,802	39,035	306,040	931,993	2,021,008	821,655
Indiana.....	1,302,829	949,055	17,285	272,436	384	1,505	14,610	33,124	14,430
Iowa.....	806,833	374,358	65	298,485	595	28,376	11,047	61,514	32,393
Kansas.....	69,922	2,257		67,363			144	134	24
Kentucky.....	44,173,041	18,404,782	10,798,089	595,009	41,298	9,463	6,980,442	4,554,784	2,789,174
Louisiana.....	2,870,036	1,068,507	1,496,436	136,047	3,603		29,840	58,726	76,877
Maryland.....	16,643,653	8,041,576	3,601,507	1,610,879	41,458	1,269,384	350,467	663,011	1,065,371
Massachusetts.....	170,932	131,882		15,846	3,700	19,498			3
Michigan.....	15,883,078	6,676,327	362,093	3,896,800	38,343	20,110	1,735,967	2,184,148	969,290
Minnesota.....	176,384	4,993	641	169,089	1,661				
Missouri.....	69,919,540	10,405,669	31,544,356	1,849,269	13,747	1,818,467	13,501,502	7,620,408	3,166,122
Montana.....	14,028	54		13,974					
Nebraska.....	94,500	2,302		92,198					
New Hampshire.....	1,642	189		1,228	225				
New Jersey.....	28,626,670	9,359,082	7,721,606	2,616,807	10,083	2,065,021	2,920,426	2,112,992	1,820,653
New Mexico.....	2,773			2,773					
New York.....	15,324,977	9,506,832	1,288,834	2,315,872	94,697	349,072	877,946	397,553	494,171
North Carolina.....	87,440,484	73,380,456	3,519,536	1,686,585	98,252	305,495	3,396,562	2,440,476	2,613,122
North Dakota.....	850			850					
Ohio.....	26,326,085	1,459,805	5,542,905	9,962,250	18,409	252,035	3,024,317	5,291,900	774,464
Oklahoma.....	2,867			2,867					
Oregon.....	12,568			12,568					
Pennsylvania.....	6,031,698	4,205,959	7,700	972,927	88,566	1,827	156,883	128,331	469,505
Rhode Island.....	10,538	10,538							
South Carolina.....	1,269	1,189						80	
South Dakota.....	9,459			9,459					
Tennessee.....	10,115,252	8,204,038	161,554	67,392	426,452	814,676	281,677	107,651	51,812
Texas.....	93,607	52,509	622	36,584	3,274	210	408		
Utah.....	2,125		220	1,905					
Vermont.....	2,100			2,100					
Virginia.....	33,590,103	18,877,619	7,848,986	501,197	170,751	36,100	2,367,724	2,019,818	1,767,908
Washington.....	9,957			9,957					
West Virginia.....	5,390,524	1,916	100	4,080,648	354	2,862	300,435	203,101	801,108
Wisconsin.....	6,934,888	5,319,916	26,293	309,403	17,183	742,073	148,560	205,587	165,853
Wyoming.....	3,206			3,206					

TABLE 11.—CHEWING AND SMOKING TOBACCO AND SNUFF—QUANTITY OF MATERIALS AND PRODUCTS, BY STATES AND TERRITORIES: 1904—Continued.

PRODUCTS.

STATE OR TERRITORY.	Total.	Plug.	Twist and other forms of leaf.	Fine cut.	Smoking.	Snuff.
	Pounds.	Pounds.	Pounds.	Pounds.	Pounds.	Pounds.
United States.....	353,686,574	163,379,270	8,783,211	12,151,003	149,151,690	20,221,400
Arizona.....	22,765				22,765	
Arkansas.....	1,360		47		1,303	
California.....	225,843	28,246			197,597	
Colorado.....	65,331				65,331	
Connecticut.....	33,780				33,403	377
Delaware.....	4,386,897				27	4,386,870
District of Columbia.....	2,957				2,957	
Florida.....	25,412				25,412	
Georgia.....	4,218				4,218	
Idaho.....	1,774				1,774	
Illinois.....	15,328,656	305,200	512,348	5,572,234	8,566,794	372,080
Indiana.....	1,229,091	4,338	859,121	400	360,884	4,348
Iowa.....	798,317		1,632	92,640	705,434	243
Kansas.....	69,238		1,206,247	185,420	67,606	
Kentucky.....	40,766,729	31,884,941			7,430,121	
Louisiana.....	2,539,525		31,200		2,482,605	25,720
Maryland.....	14,691,056				11,119,390	3,571,666
Massachusetts.....	172,657				50,136	122,521
Michigan.....	14,975,665	3,143,161	56,637	1,354,616	10,349,290	71,961
Minnesota.....	183,034				178,362	4,672
Missouri.....	68,329,714	56,963,591	4,266,031		7,090,361	9,731
Montana.....	14,028				14,028	
Nebraska.....	94,500				94,500	
New Hampshire.....	1,576				1,366	210
New Jersey.....	26,435,413	6,659,186		2,127,460	11,001,354	6,647,413
New Mexico.....	2,773				2,773	
New York.....	15,099,965	38,470	3,070	2,290,699	12,635,927	131,799
North Carolina.....	68,502,499	34,387,689	73,413		34,041,397	
North Dakota.....	850				850	
Ohio.....	26,219,406	6,613,247	398,538	8,595	19,198,669	357
Oklahoma.....	2,867				2,867	
Oregon.....	12,568				12,568	
Pennsylvania.....	5,592,708	5,405		56,850	4,571,102	959,351
Rhode Island.....	7,866				7,866	
South Carolina.....	881	625			256	
South Dakota.....	9,454				9,454	
Tennessee.....	7,112,383	1,571,652	1,242,469	4,282	398,834	3,895,126
Texas.....	93,290				93,290	
Utah.....	2,125				2,125	
Vermont.....	2,100				2,100	
Virginia.....	28,983,362	21,773,519	69,508	34,531	7,105,804	
Washington.....	9,936				9,936	
West Virginia.....	4,950,902		50		4,949,788	7,064
Wisconsin.....	6,671,927		2,900	423,276	6,235,860	9,891
Wyoming.....	3,206				3,206	

According to these statistics, North Carolina led in the production of this class of tobacco and was closely followed by Missouri. Kentucky came third, followed by Virginia, New Jersey, and Ohio, in the order named. The combined production of the 6 leading states named was 259,237,123 pounds, or 73.3 per cent of all tobacco in this class.

The aggregate quantity of tax-paid chewing and smoking tobacco and snuff withdrawn for consumption for each fiscal year from 1900 to 1905, as shown by the reports of the Commissioner of Internal Revenue, is given in the following tabular statement:

Chewing and smoking tobacco and snuff—quantity withdrawn for consumption: 1900 to 1905.

[From the reports of the Commissioner of Internal Revenue.]

YEAR ENDING JUNE 30—	Pounds.
1905.....	355,620,971
1904.....	348,808,290
1903.....	329,495,386
1902.....	315,719,475
1901.....	310,793,559
1900.....	293,894,453

Tables 12 and 13 are detailed summaries for cigars and cigarettes, and chewing and smoking tobacco and snuff, respectively, by states and territories, for the census of 1905.

TABLE 12.—CIGARS AND CIGARETTES—DETAILED

	United States.	Alabama.	Arizona.	Arkansas.	California.
1 Number of establishments.....	16,395	32	11	20	379
2 Capital, total.....	\$145,135,945	\$128,101	\$78,045	\$23,053	\$1,244,645
3 Land.....	\$4,453,980	\$11,997	\$2,100	\$225	\$43,180
4 Buildings.....	\$8,924,218	\$13,345	\$7,700	\$689	\$32,260
5 Machinery, tools, and implements.....	\$6,665,282	\$3,301	\$2,017	\$1,121	\$53,757
6 Cash and sundries.....	\$125,092,465	\$99,458	\$66,228	\$21,018	\$1,115,448
7 Proprietors and firm members.....	18,586	37	13	24	695
8 Salaried officials, clerks, etc.:.....					
9 Total number.....	7,129	13	5	2	72
10 Total salaries.....	\$6,343,682	\$10,370	\$8,480	\$1,028	\$65,541
11 Officers of corporations.....					
12 Number.....	506	2	1		10
13 Salaries.....	\$1,085,236	\$3,300	\$3,600		\$15,500
14 General superintendents, managers, clerks, etc.—					
15 Total number.....	6,623	11	4	2	62
16 Total salaries.....	\$5,258,446	\$7,070	\$4,880	\$1,028	\$50,041
17 Men—					
18 Number.....	5,612	11	4	2	52
19 Salaries.....	\$4,852,067	\$7,070	\$4,880	\$1,028	\$45,212
20 Women—					
21 Number.....	1,011				10
22 Salaries.....	\$406,379				\$4,829
23 Wage-earners, including pieceworkers, and total wages:					
24 Greatest number employed at any one time during the year.....	163,982	211	90	67	2,199
25 Least number employed at any one time during the year.....	115,218	149	66	47	1,517
26 Average number.....	135,418	169	73	55	1,785
27 Total wages.....	\$55,864,978	\$77,263	\$45,520	\$35,184	\$822,633
28 Men 16 years and over—					
29 Average number.....	72,970	152	57	43	1,423
30 Wages.....	\$38,198,064	\$74,532	\$41,793	\$32,619	\$713,050
31 Women 16 years and over—					
32 Average number.....	57,174	9	11	1	310
33 Wages.....	\$16,889,901	\$1,785	\$2,825	\$520	\$97,387
34 Children under 16 years—					
35 Average number.....	5,274	8	5	11	52
36 Wages.....	\$777,013	\$946	\$902	\$2,045	\$12,196
37 Average number of wage-earners, including pieceworkers, employed during each month:					
38 Men 16 years and over—					
39 January.....	69,308	138	52	43	1,414
40 February.....	69,977	155	53	43	1,385
41 March.....	71,186	149	53	44	1,398
42 April.....	71,849	156	54	43	1,394
43 May.....	72,343	156	55	45	1,428
44 June.....	72,104	155	53	45	1,416
45 July.....	72,299	152	59	46	1,370
46 August.....	72,755	143	61	42	1,416
47 September.....	74,387	148	59	42	1,435
48 October.....	76,274	157	65	43	1,471
49 November.....	76,997	157	60	41	1,491
50 December.....	76,161	158	60	39	1,458
51 Women 16 years and over—					
52 January.....	56,398	9	11	1	313
53 February.....	56,730	12	10	1	319
54 March.....	56,843	12	10	1	309
55 April.....	54,330	12	10	1	303
56 May.....	55,396	9	10	1	303
57 June.....	56,327	8	10	1	297
58 July.....	57,313	9	12	1	292
59 August.....	57,021	9	12	1	313
60 September.....	58,087	7	12	1	307
61 October.....	59,292	7	12	1	313
62 November.....	59,626	6	11	1	323
63 December.....	58,725	8	12	1	328
64 Children under 16 years—					
65 January.....	5,111	7	4	10	50
66 February.....	5,129	7	4	10	52
67 March.....	5,092	8	4	10	52
68 April.....	4,890	8	4	10	51
69 May.....	4,816	7	4	11	53
70 June.....	5,141	7	4	12	53
71 July.....	5,413	10	6	11	45
72 August.....	5,556	10	6	10	54
73 September.....	5,518	7	6	12	50
74 October.....	5,533	8	6	12	56
75 November.....	5,592	8	6	12	55
76 December.....	5,497	7	6	12	53
77 Miscellaneous expenses, total.....	\$41,591,222	\$32,803	\$28,104	\$25,230	\$557,667
78 Rent of works.....	\$2,555,016	\$5,461	\$1,750	\$2,184	\$32,000
79 Taxes, not including internal revenue.....	\$333,098	\$868	\$501	\$141	\$5,707
80 Rent of offices, interest, insurance, internal revenue taxes, and all other					
81 sundry expenses not hitherto included.....	\$38,470,299	\$26,424	\$25,853	\$22,905	\$469,710
82 Contract work.....	\$232,809	\$50			\$250
83 Materials used, aggregate cost.....	\$81,134,561	\$74,354	\$37,869	\$85,142	\$1,097,194
84 Principal materials, total cost.....	\$69,914,255	\$63,467	\$31,250	\$74,346	\$928,526
85 Purchased in raw state.....	\$69,291,011	\$62,518	\$31,250	\$74,346	\$928,511
86 Purchased in partially manufactured form.....	\$623,244	\$949			\$15
87 Fuel.....	\$324,996	\$157	\$25	\$157	\$938
88 Rent of power and heat.....	\$117,761	\$49		\$25	\$1,568
89 Mill supplies.....	\$17,593	\$15		\$10	\$123
90 All other materials.....	\$10,432,882	\$10,112	\$5,696	\$10,134	\$158,858
91 Freight.....	\$327,074	\$554	\$898	\$470	\$7,191
92 Products, total value.....	\$214,350,051	\$244,370	\$144,970	\$227,234	\$3,192,331

SUMMARY, BY STATES AND TERRITORIES: 1905.

Colorado.	Connecticut.	Delaware.	District of Columbia.	Florida.	Georgia.	Idaho.	Illinois.	Indian Territory.	Indiana.	Iowa.	Kansas.
117	226	19	25	208	37	17	1,788	8	536	440	172
\$299,467	\$1,173,806	\$99,522	\$77,034	\$7,383,963	\$392,998	\$35,986	\$5,157,197	\$6,905	\$1,368,000	\$1,489,923	\$512,237
\$12,640	\$38,235	\$1,100	\$28,100	\$134,894	\$1,250	\$1,700	\$552,915	\$1,000	\$115,238	\$41,440	\$24,095
\$24,550	\$100,179	\$5,100	\$17,900	\$371,480	\$3,650	\$0,000	\$812,660	\$1,000	\$18,069	\$187,644	\$81,850
\$14,949	\$28,792	\$2,575	\$1,960	\$137,579	\$22,301	\$2,215	\$196,244	\$893	\$54,911	\$63,592	\$26,236
\$247,328	\$1,006,600	\$90,747	\$29,074	\$6,740,010	\$365,797	\$26,071	\$3,595,378	\$4,012	\$1,009,782	\$1,157,247	\$380,056
128	253	21	25	284	45	19	1,993	9	609	499	206
23	73	4	2	746	28	3	333		100	137	23
\$27,740	\$70,268	\$2,610	\$1,030	\$765,354	\$15,823	\$1,320	\$262,540		\$74,956	\$117,883	\$17,066
6	4			56		2	30		7	18	1
\$8,490	\$5,200			\$173,495		\$740	\$45,955		\$11,080	\$21,384	\$900
17	69	4	2	690	28	1	303		93	119	22
\$19,250	\$65,068	\$2,610	\$1,030	\$391,570	\$15,823	\$540	\$216,585		\$23,876	\$96,499	\$16,166
14	64	4	2	618	27	1	244		76	108	20
\$18,080	\$62,340	\$2,610	\$1,030	\$377,065	\$15,589	\$540	\$195,287		\$56,982	\$91,363	\$15,316
3	5			72	1		59		17	11	2
\$1,170	\$2,128			\$14,794	\$234		\$21,298		\$6,894	\$5,136	\$850
566	1,402	263	84	13,487	352	61	8,292	12	3,125	2,588	713
421	1,193	156	38	7,081	184	44	5,844	8	2,311	1,771	546
481	1,267	113	60	9,657	255	42	6,675	7	2,521	2,040	594
\$308,327	\$765,542	\$42,747	\$30,413	\$5,577,106	\$81,323	\$29,736	\$3,463,018	\$2,958	\$988,393	\$538,699	\$238,110
380	1,018	56	58	7,938	83	34	5,085	5	1,411	1,266	364
\$267,763	\$689,942	\$24,024	\$29,986	\$5,057,648	\$40,247	\$27,244	\$2,950,313	\$2,574	\$752,906	\$636,669	\$176,799
90	226	50	1	1,700	160	4	1,329	2	941	676	188
\$38,146	\$71,552	\$17,075	\$375	\$516,599	\$39,631	\$1,305	\$472,405	\$384	\$214,625	\$188,335	\$55,075
11	23	7	1	19	12	4	261		169	98	42
\$2,415	\$4,048	\$1,048	\$52	\$2,859	\$1,445	\$1,187	\$40,300		\$20,862	\$13,695	\$6,236
357	966	96	60	7,325	82	24	4,925	4	1,341	1,225	345
366	977	93	63	7,368	79	24	4,886	5	1,341	1,223	343
374	978	91	63	7,619	88	24	4,894	5	1,338	1,188	355
363	965	75	63	7,715	86	25	5,102	5	1,386	1,219	365
365	967	38	55	7,742	80	35	5,090	5	1,415	1,260	370
357	1,021	41	50	6,922	77	36	4,981	5	1,441	1,270	368
366	1,041	32	47	7,857	69	41	4,875	5	1,438	1,275	367
373	1,033	36	50	8,075	72	45	5,019	5	1,423	1,282	367
390	1,030	39	56	8,255	78	45	5,107	6	1,435	1,298	370
404	1,051	40	54	8,768	82	38	5,322	5	1,439	1,310	374
415	1,060	45	66	8,992	98	37	5,387	5	1,467	1,323	375
421	1,067	46	69	8,618	105	34	5,432	5	1,468	1,319	369
84	232	139	1	1,504	171	3	1,311	2	997	643	171
86	221	132	1	1,598	160	3	1,278	2	985	657	184
88	220	128	1	1,673	165	3	1,246	2	855	595	185
87	223	102	1	1,596	172	3	1,316	2	862	627	191
85	228	13	1	1,623	179	4	1,328	2	841	636	194
86	230	15	1	1,482	174	4	1,306	2	864	642	183
87	227	13	1	1,691	155	4	1,251	2	966	655	182
91	225	13	1	1,726	140	5	1,283	2	925	647	193
95	226	11	1	1,749	147	5	1,325	2	992	698	194
98	225	13	1	1,912	147	4	1,408	2	1,008	740	193
97	230	14	1	1,992	158	5	1,448	2	1,004	780	195
100	225	17	1	1,854	152	5	1,448	2	993	792	191
11	22	7	1	17	14	4	243		170	96	41
11	22	5	1	20	13	4	242		169	94	41
11	22	5	1	20	13	4	249		123	94	42
11	22	7	1	18	11	4	253		125	97	42
11	21	8	1	18	20	4	257		127	92	41
11	21	7	1	19	16	4	262		128	100	41
11	23	5	1	17	12	4	267		175	101	41
11	23	7	1	19	11	4	268		185	95	42
11	24	7	1	20	10	4	270		202	102	44
11	25	1	1	19	8	4	272		210	102	42
11	26	6	1	21	8	4	275		210	101	44
11	25	1	1	20	8	4	274		204	102	43
\$116,932	\$290,775	\$28,799	\$13,779	\$2,366,743	\$60,588	\$11,816	\$1,795,083	\$2,065	\$542,063	\$556,129	\$139,119
\$18,583	\$33,915	\$3,414	\$2,560	\$49,068	\$3,504	\$1,980	\$217,586	\$482	\$43,695	\$57,065	\$18,743
\$2,097	\$2,900	\$207	\$610	\$15,008	\$2,286	\$286	\$24,303	\$117	\$10,030	\$10,882	\$3,504
\$95,720	\$253,690	\$25,178	\$10,609	\$2,301,980	\$54,798	\$9,550	\$1,552,594	\$1,466	\$488,243	\$487,574	\$116,828
\$532	\$270			\$687			\$600		\$95	\$608	\$44
\$336,305	\$852,251	\$62,604	\$32,853	\$6,595,555	\$124,180	\$42,532	\$4,109,626	\$5,487	\$1,497,896	\$1,199,642	\$340,650
\$287,482	\$764,166	\$53,530	\$28,166	\$5,950,283	\$105,619	\$35,500	\$3,527,638	\$4,533	\$1,300,123	\$1,052,246	\$294,446
\$287,482	\$763,278	\$53,513	\$28,156	\$5,932,305	\$105,619	\$35,500	\$3,514,204	\$4,533	\$1,299,712	\$1,052,238	\$293,333
	\$888	\$17	\$17,978	\$17,978			\$13,434		\$411	\$8	\$1,113
\$684	\$5,853	\$330	\$226	\$574	\$70	\$74	\$37,641	\$49	\$7,251	\$6,289	\$2,679
\$275	\$1,405	\$277	\$35	\$1,504	\$690	\$41	\$4,829		\$2,037	\$951	\$190
	\$7			\$15			\$276		\$198	\$25	\$39
\$45,043	\$74,810	\$7,789	\$3,945	\$604,998	\$17,500	\$5,566	\$524,390	\$905	\$182,912	\$132,068	\$40,656
\$2,821	\$6,010	\$678	\$481	\$38,196	\$286	\$1,351	\$14,852		\$5,305	\$8,003	\$2,640
\$979,051	\$2,349,710	\$160,676	\$98,318	\$16,764,276	\$296,417	\$104,471	\$11,669,485	\$14,375	\$3,637,078	\$3,187,522	\$910,121

TABLE 12.—CIGARS AND CIGARETTES—DETAILED

		United States.	Alabama.	Arizona.	Arkansas.	California.
79	Power:					
	Number of establishments reporting.....	325				3
80	Total horsepower.....	6,862				22
	Owned—					
	Engines—					
	Steam—					
81	Number.....	94				
82	Horsepower.....	4,087				
	Gas and gasoline—					
83	Number.....	52				
84	Horsepower.....	411				
	Water motors—					
85	Number.....	3				
86	Horsepower.....	3				
	Electric motors—					
87	Number.....	74				
88	Horsepower.....	793				
	Rented—					
	Electric motors—					
89	Number.....	277				3
90	Horsepower.....	1,388				16
91	Other kind, horsepower.....	180				6

SUMMARY, BY STATES AND TERRITORIES: 1905—Continued.

Colorado.	Connecticut.	Delaware.	District of Columbia.	Florida.	Georgia.	Idaho.	Illinois.	Indian Ter- ritory.	Indiana.	Iowa.	Kansas.	
	6			6	1		10		5	6	2	79
	24			23	32		155		99	23	17	80
	1						2		1			81
	2						115		80			82
										1	1	83
										5	16	84
												85
												86
							2					87
							3					88
	5			6	2		7		4	6	1	89
	20			23	32		12		19	18	1	90
	2						25					91

TABLE 12.—CIGARS AND CIGARETTES—DETAILED

	Kentucky.	Louisiana.	Maine.	Maryland.	Massachusetts.
1 Number of establishments.....	184	22	64	340	348
2 Capital, total.....	\$1,422,335	\$2,025,645	\$136,675	\$5,017,841	\$2,342,002
3 Land.....	\$149,410	\$19,229	\$3,160	\$80,475	\$63,406
4 Buildings.....	\$79,420	\$104,135	\$10,250	\$424,241	\$99,955
5 Machinery, tools, and implements.....	\$48,465	\$78,384	\$10,424	\$359,147	\$96,583
6 Cash and sundries.....	\$1,145,040	\$1,823,806	\$112,841	\$4,153,978	\$2,082,058
7 Proprietors and firm members.....	193	17	75	386	392
8 Salaried officials, clerks, etc.:—					
9 Total number.....	75	136	8	166	164
10 Total salaries.....	\$70,966	\$68,594	\$5,276	\$124,573	\$199,851
11 Officers of corporations—					
12 Number.....	14	7		6	21
13 Salaries.....	\$21,137	\$17,085		\$10,500	\$44,993
14 General superintendents, managers, clerks, etc.—					
15 Total number.....	61	129	8	160	143
16 Total salaries.....	\$49,829	\$51,509	\$5,276	\$114,073	\$154,858
17 Men—					
18 Number.....	53	81	6	141	110
19 Salaries.....	\$46,855	\$41,527	\$4,308	\$105,175	\$137,867
20 Women—					
21 Number.....	8	48	2	19	33
22 Salaries.....	\$2,974	\$9,982	\$968	\$8,898	\$16,991
23 Wage-earners, including pieceworkers, and total wages:					
24 Greatest number employed at any one time during the year.....	1,545	1,669	319	3,630	4,190
25 Least number employed at any one time during the year.....	1,094	1,132	209	1,986	3,017
26 Average number.....	1,258	1,335	244	2,844	3,575
27 Total wages.....	\$465,823	\$329,648	\$122,810	\$1,033,703	\$2,331,446
28 Men 16 years and over—					
29 Average number.....	645	293	189	1,402	2,519
30 Wages.....	\$324,625	\$105,273	\$109,143	\$621,440	\$1,939,739
31 Women 16 years and over—					
32 Average number.....	491	930	55	1,283	1,033
33 Wages.....	\$123,691	\$203,007	\$13,667	\$388,048	\$387,481
34 Children under 16 years—					
35 Average number.....	122	112		159	23
36 Wages.....	\$17,507	\$21,368		\$24,215	\$4,226
37 Average number of wage-earners, including pieceworkers, employed during each month:					
38 Men 16 years and over—					
39 January.....	626	298	177	1,267	2,264
40 February.....	616	284	174	1,283	2,404
41 March.....	627	282	172	1,403	2,425
42 April.....	650	243	180	1,436	2,447
43 May.....	642	235	183	1,418	2,498
44 June.....	653	305	191	1,431	2,533
45 July.....	649	287	205	1,403	2,620
46 August.....	649	296	205	1,406	2,634
47 September.....	648	306	199	1,435	2,704
48 October.....	663	304	197	1,443	2,622
49 November.....	669	337	192	1,460	2,600
50 December.....	648	339	193	1,439	2,477
51 Women 16 years and over—					
52 January.....	511	960	62	1,301	947
53 February.....	458	1,008	60	1,309	1,003
54 March.....	446	998	60	1,528	1,101
55 April.....	433	833	58	1,507	1,070
56 May.....	447	789	58	1,381	1,024
57 June.....	453	895	56	1,384	956
58 July.....	502	892	48	1,298	1,024
59 August.....	503	918	51	1,160	1,039
60 September.....	511	937	47	1,108	1,088
61 October.....	538	951	50	1,100	1,102
62 November.....	550	1,005	54	1,169	1,042
63 December.....	510	974	56	1,151	1,000
64 Children under 16 years—					
65 January.....	126	94		160	21
66 February.....	112	108		165	22
67 March.....	106	117		195	22
68 April.....	107	92		193	25
69 May.....	112	107		175	23
70 June.....	131	103		178	24
71 July.....	137	113		168	24
72 August.....	135	115		144	22
73 September.....	126	126		136	25
74 October.....	130	126		124	25
75 November.....	122	122		137	24
76 December.....	120	121		133	19
77 Miscellaneous expenses, total.....	\$307,506	\$244,283	\$55,757	\$1,130,004	\$912,247
78 Rent of works.....	\$23,381	\$9,421	\$7,845	\$45,108	\$92,436
Taxes, not including internal revenue.....	\$6,434	\$7,203	\$804	\$12,952	\$16,154
Rent of offices, interest, insurance, internal revenue taxes, and all other sundry expenses not hitherto included.....	\$277,691	\$227,659	\$47,108	\$1,068,370	\$799,158
Contract work.....					
Materials used, aggregate cost.....	\$713,881	\$569,854	\$181,524	\$3,574	\$4,499
Principal materials, total cost.....	\$620,728	\$495,069	\$156,714	\$1,634,305	\$2,491,623
Purchased in raw state.....	\$618,023	\$495,069	\$156,714	\$1,340,373	\$2,238,422
Purchased in partially manufactured form.....	\$2,705			\$1,337,919	\$2,234,455
Fuel.....	\$1,099	\$524	\$1,196	\$2,454	\$3,967
Rent of power and heat.....	\$1,444	\$1,342	\$501	\$5,508	\$7,461
Mill supplies.....	\$41			\$6,659	\$3,039
All other materials.....	\$88,984	\$71,702	\$22,238	\$249	\$74
Freight.....	\$985	\$1,217	\$575	\$278,754	\$232,028
Products, total value.....	\$1,796,049	\$1,427,803	\$449,563	\$4,648,003	\$6,577,810

SUMMARY, BY STATES AND TERRITORIES: 1905—Continued.

Michigan.	Minnesota.	Mississippi.	Missouri.	Montana.	Nebraska.	Nevada.	New Hampshire.	New Jersey.	New Mexico.	New York.	North Carolina.
696	349	4	544	44	157	5	45	544	7	3,475	16
\$2,462,314	\$1,461,568	\$6,175	\$1,035,807	\$71,124	\$370,172	\$23,952	\$202,508	\$11,939,680	\$22,245	\$45,760,207	\$4,048,017
\$101,547	\$83,010	\$300	\$68,969	\$6,500	\$31,525		\$3,715	\$169,088	\$1,000	\$1,026,935	\$6,300
\$194,996	\$164,168	\$200	\$125,075	\$12,550	\$44,815		\$12,100	\$413,393	\$200	\$1,597,983	\$16,350
\$128,340	\$56,361	\$425	\$37,261	\$4,205	\$16,746	\$200	\$5,031	\$733,684	\$720	\$1,823,636	\$173,631
\$2,037,431	\$1,158,029	\$5,250	\$804,502	\$47,869	\$277,086	\$23,752	\$181,662	\$10,622,915	\$20,325	\$41,311,653	\$3,851,736
782	390	5	606	46	176	5	53	562	10	3,843	18
282	115	1	87	1	16	1	3	234		1,973	65
\$231,448	\$119,626	\$225	\$72,091	\$1,200	\$15,216	\$180	\$1,809	\$231,184		\$1,888,359	\$58,909
40	12		22		1			16		98	5
\$54,806	\$17,750		\$22,677		\$1,200			\$39,071		\$294,267	\$6,724
242	103	1	65	1	15	1	3	218		1,875	60
\$176,582	\$101,576	\$225	\$49,414	\$1,200	\$14,016	\$180	\$1,809	\$192,113		\$1,594,092	\$52,185
198	78	1	60	1	13	1	3	191		1,586	55
\$164,011	\$91,050	\$225	\$47,722	\$1,200	\$13,300	\$180	\$1,809	\$178,946		\$1,459,912	\$49,755
44	25		5		2			27		289	5
\$12,571	\$10,820		\$1,692		\$716			\$13,167		\$134,180	\$2,420
6,639	2,145	18	2,024	122	616	23	396	7,062	29	28,102	1,100
4,667	1,549	16	1,497	89	475	10	292	5,076	14	27,665	895
5,491	1,779	6	1,685	95	516	13	342	6,073	18	32,989	970
\$2,160,501	\$830,968	\$2,648	\$871,447	\$66,017	\$237,531	\$11,760	\$198,235	\$1,864,763	\$10,703	\$14,228,994	\$227,291
2,358	1,296	4	1,368	86	366	12	282	1,745	17	17,495	285
\$1,279,215	\$694,697	\$2,466	\$792,998	\$63,924	\$197,878	\$11,552	\$177,822	\$837,970	\$10,547	\$8,784,500	\$87,029
2,690	459	2	169	1	110		58	3,977		15,248	530
\$829,074	\$139,081	\$182	\$54,084	\$200	\$33,640		\$20,049	\$976,116		\$5,400,410	\$115,993
443	24		148	8	40	1	2	251	1	246	155
\$52,212	\$3,190		\$24,365	\$1,893	\$6,013	\$208	\$364	\$50,677	\$156	\$42,994	\$24,269
2,267	1,214	3	1,248	71	355	14	247	1,726	12	16,499	283
2,288	1,251	3	1,270	68	355	13	242	1,720	15	16,717	289
2,290	1,246	3	1,312	71	360	12	250	1,736	24	17,260	284
2,323	1,278	3	1,342	79	366	12	270	1,728	26	17,226	270
2,412	1,266	3	1,392	91	365	12	284	1,750	26	17,426	264
2,467	1,328	3	1,397	93	365	12	290	1,763	11	17,646	275
2,398	1,323	3	1,398	98	369	11	314	1,745	13	17,013	277
2,367	1,310	3	1,376	98	371	10	311	1,735	15	17,123	286
2,390	1,332	2	1,399	87	373	12	207	1,735	15	17,804	303
2,405	1,332	8	1,448	92	376	12	297	1,762	11	18,300	294
2,347	1,343	7	1,429	92	371	12	286	1,780	21	18,491	296
2,342	1,329	7	1,405	92	366	12	286	1,760	15	18,425	299
2,579	451		166	1	108		49	4,306		14,501	517
2,604	448		169	1	109		49	4,237		14,551	529
2,560	442		163	1	109		50	4,163		14,947	514
2,540	441		167	1	109		54	3,411		14,579	503
2,552	440		167	1	109		54	3,266		14,816	499
2,639	448		169	1	109		54	3,788		15,403	524
2,669	443		172	1	110		64	4,108		15,326	522
2,679	452		171	1	111		64	4,081		15,351	528
2,810	469		170	1	111		65	4,061		15,639	550
2,881	485	8	175	1	112		65	4,118		15,946	548
2,869	496	8	175	1	113		64	4,105		15,990	562
2,898	493	8	164	1	111		64	4,080		15,927	564
443	22		149	8	38	1	2	376	1	218	150
444	22		143	8	39	1	2	372	1	228	156
430	23		143	8	39	1	2	375	1	237	154
394	24		143	8	40	1	2	308	1	229	156
378	25		148	8	38	1	2	292	1	233	135
382	25		149	8	39	1	2	323	1	254	152
470	25		152	8	40	1	2	346	1	254	154
470	25		154	8	43	1	2	358	1	265	157
486	25		153	8	41	1	2	358	1	251	164
463	24		148	8	42	1	2	348	1	259	160
482	24		150	8	40	1	2	379	1	261	157
474	24		144	8	41	1	2	377		263	165
\$1,516,429	\$601,720	\$1,369	\$421,721	\$40,335	\$132,415	\$6,352	\$71,571	\$1,915,723	\$4,697	\$12,733,625	\$445,442
\$90,105	\$43,621	\$365	\$64,827	\$5,930	\$17,689	\$2,256	\$7,807	\$88,925	\$1,540	\$867,797	\$8,399
\$20,205	\$7,820	\$6	\$6,583	\$949	\$3,003	\$349	\$651	\$10,951	\$96	\$47,184	\$5,588
\$1,394,907	\$550,279	\$998	\$349,891	\$33,456	\$111,723	\$3,747	\$64,888	\$1,815,737	\$3,061	\$11,703,779	\$431,455
\$11,212			\$420				\$225	\$100		\$134,865	
\$3,067,010	\$1,097,278	\$3,707	\$1,072,429	\$105,032	\$338,183	\$12,198	\$261,102	\$3,071,130	\$12,442	\$23,431,395	\$1,187,579
\$2,693,604	\$919,328	\$3,137	\$853,597	\$91,173	\$288,261	\$9,481	\$241,512	\$2,377,305	\$10,591	\$20,338,896	\$839,792
\$2,690,719	\$916,953	\$3,137	\$921,997	\$91,173	\$287,347	\$9,481	\$241,512	\$2,375,884	\$10,591	\$19,956,007	\$751,094
\$2,885	\$2,375		\$914					\$1,421		\$382,889	\$88,698
\$13,940	\$7,744	\$10	\$3,966	\$177	\$3,763	\$105	\$177	\$23,042		\$71,134	\$930
\$4,391	\$3,791		\$126	\$283	\$804		\$171	\$8,136		\$30,326	\$5,116
\$773	\$100	\$60	\$119				\$25	\$737		\$5,983	\$2,904
\$343,737	\$158,415	\$500	\$109,837	\$10,959	\$42,172	\$2,432	\$18,253	\$459,650	\$1,455	\$2,944,212	\$329,431
\$10,585	\$7,900		\$4,084	\$2,140	\$3,183	\$180	\$664	\$2,251	\$321	\$40,844	\$9,406
\$7,995,230	\$3,200,933	\$9,310	\$3,047,760	\$271,281	\$899,867	\$41,076	\$569,980	\$8,331,611	\$36,731	\$60,623,617	\$2,599,248

TABLE 12.—CIGARS AND CIGARETTES—DETAILED

		Kentucky.	Louisiana.	Maine.	Maryland.	Massachusetts.
79	Power:					
80	Number of establishments reporting.....	3	2		8	16
	Total horsepower.....	50	82		163	28
	Owned—					
	Engines—					
81	Steam—					
82	Number.....	1	1		1	
	Horsepower.....	20	50		35	
83	Gas and gasoline—					
84	Number.....				1	2
	Horsepower.....				4	8
	Water motors—					
85	Number.....					2
86	Horsepower.....					2
	Electric motors—					
87	Number.....					
88	Horsepower.....					
	Rented—					
	Electric motors—					
89	Number.....	1	1		17	12
90	Horsepower.....	5	7		124	18
91	Other kind, horsepower.....	25	25			

SUMMARY, BY STATES AND TERRITORIES: 1905—Continued.

Michigan.	Minnesota.	Mississippi.	Missouri.	Montana.	Nebraska.	Nevada.	New Hampshire.	New Jersey.	New Mexico.	New York.	North Carolina.	
10	6							12		98	4	79
80	20							1,113		1,405	161	80
								7		28	2	81
								825		939	30	82
	2									13		83
	7									80		84
												85
												86
								22		5		87
								183		65		88
14	6							11		67	13	89
80	13							99		277	131	90
								6		44		91

MANUFACTURES.

TABLE 12.—CIGARS AND CIGARETTES—DETAILED

	North Dakota.	Ohio.	Oklahoma.	Oregon.	Pennsylvania.
1 Number of establishments.....	27	1,311	39	54	2,774
2 Capital, total.....	\$34,672	\$8,154,358	\$48,522	\$123,476	\$22,082,481
3 Land.....	\$5,100	\$228,730	\$13,850	\$6,900	\$964,762
4 Buildings.....	\$9,050	\$439,115	\$7,120	\$8,250	\$2,240,682
5 Machinery, tools, and implements.....	\$2,035	\$351,176	\$3,056	\$11,948	\$11,033,877
6 Cash and sundries.....	\$18,487	\$7,135,337	\$24,596	\$96,378	\$17,843,160
7 Proprietors and firm members.....	30	1,471	47	65	3,096
8 Salaried officials, clerks, etc.:—					
9 Total number.....		504		5	1,324
10 Total salaries.....		\$417,309		\$3,950	\$1,044,682
11 Officers of corporations—					
12 Number.....		32		1	64
13 Salaries.....		\$56,288		\$1,000	\$166,035
14 General superintendents, managers, clerks, etc.—					
15 Total number.....		472		4	1,260
16 Total salaries.....		\$361,021		\$2,950	\$878,647
17 Men—					
18 Number.....		388		3	1,059
19 Salaries.....		\$330,327		\$2,650	\$792,114
20 Women—					
21 Number.....		84		1	201
22 Salaries.....		\$30,694		\$300	\$86,533
23 Wage-earners, including pieceworkers, and total wages:					
24 Greatest number employed at any one time during the year.....	44	12,755	85	191	35,918
25 Least number employed at any one time during the year.....	27	8,755	56	135	26,731
26 Average number.....	30	10,175	59	163	30,320
27 Total wages.....	\$16,019	\$3,541,820	\$24,543	\$92,242	\$10,278,800
28 Men 16 years and over—					
29 Average number.....	27	3,775	48	120	14,387
30 Wages.....	\$15,734	\$1,873,526	\$22,698	\$76,743	\$6,095,798
31 Women 16 years and over—					
32 Average number.....	1	5,994	3	33	14,336
33 Wages.....	\$150	\$1,609,141	\$706	\$13,276	\$3,956,441
34 Children under 16 years—					
35 Average number.....	2	406	8	10	1,597
36 Wages.....	\$135	\$59,153	\$1,139	\$2,223	\$226,561
37 Average number of wage-earners, including pieceworkers, employed during each month:					
38 Men 16 years and over—					
39 January.....	20	3,646	50	120	13,643
40 February.....	22	3,680	50	120	13,887
41 March.....	23	3,678	50	122	13,960
42 April.....	24	3,742	45	122	14,157
43 May.....	22	3,742	48	121	14,176
44 June.....	27	3,658	47	117	14,384
45 July.....	26	3,762	46	117	14,323
46 August.....	28	3,712	45	120	14,385
47 September.....	30	3,822	47	124	14,660
48 October.....	35	3,948	46	119	14,938
49 November.....	34	3,935	49	119	15,177
50 December.....	33	3,975	53	119	14,954
51 Women 16 years and over					
52 January.....	1	6,066	2	25	13,844
53 February.....	1	6,088	3	26	13,934
54 March.....	1	5,710	3	26	14,002
55 April.....	1	5,330	3	40	13,626
56 May.....	1	5,494	4	40	14,799
57 June.....	1	5,656	4	41	14,404
58 July.....	1	5,956	3	41	14,664
59 August.....	1	6,036	3	41	14,390
60 September.....	1	6,240	3	41	14,592
61 October.....	1	6,522	3	25	14,606
62 November.....	1	6,506	3	25	14,737
63 December.....	1	6,324	2	25	14,434
64 Children under 16 years					
65 January.....	2	376	8	8	1,540
66 February.....	2	366	8	8	1,531
67 March.....	2	348	8	9	1,522
68 April.....	2	284	8	11	1,494
69 May.....	2	290	8	10	1,473
70 June.....	2	368	8	11	1,605
71 July.....	2	406	8	11	1,651
72 August.....	3	436	8	12	1,756
73 September.....	2	448	8	12	1,654
74 October.....	1	504	8	9	1,658
75 November.....	3	538	8	9	1,652
76 December.....	1	508	8	10	1,628
77 Miscellaneous expenses, total.....	\$11,097	\$2,726,413	\$16,217	\$51,548	\$7,810,258
78 Rent of works.....	\$1,620	\$170,549	\$2,343	\$8,239	\$329,621
79 Taxes, not including internal revenue.....	\$123	\$31,009	\$456	\$792	\$38,618
80 Rent of offices, interest, insurance, internal revenue taxes, and all other sundry expenses not hitherto included.....	\$9,054	\$2,505,011	\$13,418	\$42,517	\$7,387,749
81 Contract work.....		\$19,224			\$54,270
82 Materials used, aggregate cost.....	\$29,200	\$4,753,047	\$48,231	\$179,173	\$15,278,966
83 Principal materials, total cost.....	\$24,622	\$4,087,023	\$40,149	\$100,140	\$12,958,908
84 Purchased in raw state.....	\$24,622	\$4,077,842	\$40,149	\$159,740	\$12,955,416
85 Purchased in partially manufactured form.....		\$9,181			\$3,492
86 Fuel.....	\$408	\$20,936	\$783	\$900	\$66,384
87 Rent of power and heat.....	\$72	\$9,430	\$35		\$20,274
88 Mill supplies.....		\$597	\$60	\$125	\$2,157
89 All other materials.....	\$3,761	\$621,860	\$6,536	\$15,520	\$2,162,710
90 Freight.....	\$337	\$13,192	\$608	\$2,488	\$68,533
91 Products, total value.....	\$76,443	\$13,241,230	\$116,094	\$395,597	\$39,079,122

1 Includes 1 establishment in Alaska.

SUMMARY, BY STATES AND TERRITORIES: 1905—Continued.

Rhode Island.	South Carolina.	South Dakota.	Tennessee.	Texas.	Utah.	Vermont.	Virginia.	Washington.	West Virginia.	Wisconsin.	Wyoming.
38	7	47	40	83	27	23	95	103	79	757	12
\$183,910	\$699,296	\$124,674	\$134,267	\$261,567	\$106,388	\$48,449	\$12,480,175	\$191,806	\$541,970	\$2,072,889	\$27,796
\$11,884		\$14,350	\$9,750	\$21,025	\$1,300	\$400	\$52,690	\$19,625	\$49,700	\$187,745	\$400
\$28,950		\$8,225	\$22,400	\$54,860	\$1,800	\$3,000	\$502,374	\$24,960	\$85,375	\$332,650	\$1,500
\$6,439	\$90,663	\$7,704	\$4,724	\$12,286	\$3,845	\$2,343	\$846,968	\$9,435	\$13,900	\$77,652	\$1,545
\$136,637	\$608,633	\$94,395	\$97,393	\$173,396	\$99,443	\$42,306	\$11,078,143	\$137,786	\$392,995	\$1,474,842	\$24,351
43	5	55	46	96	33	26	104	115	81	840	14
4	25	5	11	10	9	3	171	4	31	131	1
\$5,616	\$22,874	\$4,620	\$9,196	\$15,554	\$6,925	\$2,652	\$140,657	\$3,900	\$26,186	\$107,625	\$400
2	1						13		5	9	
\$3,650	\$1,215						\$19,974		\$5,920	\$11,200	
2	24	5	11	10	9	3	158	4	26	122	1
\$1,966	\$21,659	\$4,620	\$9,196	\$15,554	\$6,925	\$2,652	\$120,683	\$3,900	\$20,266	\$96,425	\$400
2	18	5	10	10	9	3	144	4	23	108	1
\$1,966	\$19,910	\$4,620	\$8,776	\$15,554	\$6,925	\$2,652	\$113,888	\$3,900	\$18,969	\$91,162	\$400
	1		1				14		3	14	
	\$1,749		\$420				\$6,795		\$1,297	\$5,203	
248	515	205	291	440	190	94	5,224	326	1,311	2,970	34
174	382	152	197	314	125	66	3,419	234	1,070	2,300	22
217	446	107	234	336	140	77	4,043	258	1,194	2,505	27
\$128,817	\$74,113	\$40,936	\$127,546	\$155,398	\$108,533	\$39,715	\$984,233	\$176,725	\$580,541	\$1,086,203	\$15,534
158	39	143	200	228	116	72	1,080	231	722	1,867	22
\$107,830	\$9,199	\$81,614	\$120,039	\$131,807	\$102,528	\$38,170	\$348,455	\$167,475	\$482,937	\$949,550	\$14,335
58	358	15	13	90	13	3	2,688	26	340	467	2
\$20,825	\$58,797	\$3,585	\$4,694	\$20,975	\$3,514	\$805	\$588,815	\$8,990	\$82,106	\$113,554	\$780
1	49	9	21	18	11	2	275	1	132	171	3
\$156	\$6,117	\$1,737	\$2,813	\$2,616	\$2,491	\$740	\$46,960	\$240	\$15,498	\$23,099	\$419
142	38	132	212	226	119	61	1,196	228	700	1,790	17
143	45	130	211	227	109	63	1,132	223	713	1,808	18
147	37	135	204	227	108	64	1,212	221	709	1,852	19
152	37	137	198	221	112	69	1,055	220	717	1,893	23
154	35	143	193	222	114	71	1,004	221	724	1,915	25
157	39	137	184	212	118	77	1,045	225	719	1,934	23
171	38	157	191	219	118	74	1,051	223	713	1,881	23
173	38	151	182	227	119	76	1,011	232	710	1,887	22
173	39	144	187	230	115	79	1,007	233	745	1,875	24
166	41	152	198	229	123	81	1,106	247	749	1,883	24
165	40	150	213	241	118	75	1,075	249	742	1,840	23
153	41	148	227	255	119	74	1,066	250	723	1,846	23
55	399	12	13	100	14	3	2,998	26	337	450	2
55	393	13	13	99	14	3	3,069	26	353	454	2
57	356	14	12	88	14	3	3,147	26	339	468	2
56	330	14	14	86	12	3	2,772	27	350	460	2
51	337	14	13	86	12	3	2,652	25	343	460	2
53	314	16	12	82	10	3	2,706	27	332	452	2
60	399	15	11	89	11	3	2,493	26	336	476	2
62	410	16	12	79	12	3	2,437	25	329	468	2
61	356	16	13	73	12	3	2,488	27	345	476	2
62	371	17	14	90	15	3	2,552	27	342	476	2
64	305	17	14	101	15	3	2,516	27	336	484	2
60	326	16	15	107	15	3	2,426	25	338	480	2
1	51	10	21	19	9	2	274	1	125	155	3
1	51	8	23	18	9	2	286	1	126	163	3
1	52	9	22	18	11	2	287	1	123	161	2
1	51	9	20	18	11	2	284	1	134	170	3
1	50	7	20	18	9	2	272	1	134	163	3
1	52	7	20	17	11	2	271	1	135	169	3
1	40	10	20	19	12	2	276	1	136	181	4
1	50	9	21	20	14	2	262	1	136	176	3
1	48	11	21	20	11	2	267	1	160	175	4
1	47	10	21	16	12	2	274	1	145	178	2
1	43	10	21	16	11	2	273	1	123	180	3
1	44	9	22	17	12	2	274	1	107	181	3
\$50,246	\$64,866	\$48,933	\$63,439	\$76,929	\$32,506	\$19,679	\$2,323,487	\$82,353	\$382,806	\$995,448	\$6,096
\$2,906	\$3,570	\$6,954	\$5,380	\$7,598	\$4,921	\$5,189	\$12,520	\$12,098	\$12,769	\$50,178	\$1,099
\$2,978	\$525	\$718	\$726	\$1,667	\$502	\$376	\$10,552	\$1,762	\$3,359	\$11,543	\$113
\$44,362	\$60,771	\$41,056	\$57,095	\$67,613	\$27,083	\$14,114	\$2,300,415	\$68,493	\$366,678	\$632,937	\$4,884
		\$205	\$238	\$51						\$790	
\$135,019	\$108,289	\$127,336	\$134,622	\$196,365	\$110,722	\$45,591	\$1,977,069	\$228,730	\$405,424	\$1,617,341	\$14,664
\$120,597	\$85,742	\$112,073	\$118,648	\$165,811	\$96,839	\$39,093	\$1,650,457	\$190,803	\$344,555	\$1,387,267	\$12,134
\$112,479	\$85,742	\$111,353	\$118,648	\$165,811	\$96,839	\$39,093	\$1,605,558	\$190,543	\$344,555	\$1,385,914	\$12,134
\$8,118		\$720					\$44,899	\$350		\$1,353	
\$599	\$30	\$650	\$373	\$155	\$687		\$10,422	\$1,684	\$1,292	\$13,910	
\$35	\$1,156	\$80	\$2	\$90	\$50		\$1,978		\$740	\$3,388	
\$15	\$5		\$28				\$2,260	\$30	\$88		
\$13,379	\$21,346	\$13,253	\$14,252	\$26,808	\$11,733	\$5,463	\$310,282	\$29,568	\$31,064	\$202,814	\$2,374
\$297	\$10		\$992	\$3,343	\$1,905	\$298	\$1,670	\$6,555	\$27,685	\$9,962	\$156
\$358,124	\$257,078	\$327,817	\$404,241	\$519,931	\$297,918	\$127,492	\$6,105,936	\$610,078	\$1,505,429	\$4,372,139	\$49,105

TABLE 12.—CIGARS AND CIGARETTES—DETAILED

		North Dakota.	Ohio.	Oklahoma.	Oregon.	Pennsylvania.
79	Power:					
80	Number of establishments reporting.....		38		1	82
	Total horsepower.....		535		3	1,327
	Owned—					
	Engines—					
81	Steam—					
	Number.....		5			32
82	Horsepower.....		145			792
	Gas and gasoline—					
83	Number.....		13		1	15
84	Horsepower.....		112		3	146
	Water motors—					
85	Number.....					1
86	Horsepower.....					1
	Electric motors—					
87	Number.....		8			15
88	Horsepower.....		125			97
	Rented—					
	Electric motors—					
89	Number.....		25			62
90	Horsepower.....		128			279
91	Other kind, horsepower.....		25			12

TOBACCO.

575

SUMMARY, BY STATES AND TERRITORIES: 1905—Continued.

[illegible]

TABLE 13.—CHEWING AND SMOKING TOBACCO AND SNUFF—

	United States.	Arizona.	Illinois.	Indiana.	Iowa.	Kentucky.	Michigan.
1 Number of establishments.....	433	3	37	16	4	54	10
2 Capital, total.....	\$178,847,556	\$4,025	\$3,945,235	\$118,065	\$108,841	\$21,268,822	\$1,684,501
3 Land.....	\$2,040,974		\$70,777	\$1,653	\$5,200	\$178,500	\$69,052
4 Buildings.....	\$7,871,103		\$87,914	\$3,737	\$16,800	\$877,218	\$209,068
5 Machinery, tools, and implements.....	\$6,255,770	\$725	\$185,450	\$6,260	\$5,339	\$925,779	\$187,414
6 Cash and sundries.....	\$162,679,709	\$3,300	\$3,601,094	\$106,415	\$81,502	\$19,287,325	\$1,218,967
7 Proprietors and firm members.....	426	3	39	13	7	50	11
8 Salaried officials, clerks, etc.:.....							
9 Total number.....	2,107		38	24	19	222	123
10 Total salaries.....	\$2,456,752		\$52,637	\$21,188	\$8,628	\$300,357	\$143,568
11 Officers of corporations—							
12 Number.....	189		6	6		24	16
13 Salaries.....	\$530,555		\$19,767	\$7,600		\$77,630	\$45,640
14 General superintendents, managers, clerks, etc.							
15 Total number.....	1,918		32	18	19	198	107
16 Total salaries.....	\$1,926,197		\$32,870	\$13,588	\$8,628	\$222,727	\$97,928
17 Men—							
18 Number.....	1,745		27	11	19	170	102
19 Salaries.....	\$1,852,946		\$30,144	\$11,516	\$8,628	\$208,602	\$96,138
20 Women—							
21 Number.....	173		5	7		28	5
22 Salaries.....	\$73,251		\$2,072	\$2,072		\$14,125	\$1,790
23 Wage-earners, including pieceworkers, and total wages:							
24 Greatest number employed at any one time during the year.....	29,494	2	873	172	38	3,427	1,126
25 Least number employed at any one time during the year.....	19,187	2	698	128	25	2,288	791
26 Average number.....	23,990	2	796	147	32	2,711	937
27 Total wages.....	\$6,775,325	\$1,032	\$275,310	\$51,654	\$8,449	\$760,063	\$306,615
28 Men 16 years and over—							
29 Average number.....	12,721	2	240	74	11	1,748	292
30 Wages.....	\$4,212,639	\$1,032	\$128,667	\$38,383	\$3,967	\$575,710	\$138,824
31 Women 16 years and over—							
32 Average number.....	9,127		549	59	23	725	620
33 Wages.....	\$2,241,081		\$145,426	\$10,917	\$4,482	\$156,247	\$163,041
34 Children under 16 years—							
35 Average number.....	2,142		7	14		238	25
36 Wages.....	\$321,605		\$1,217	\$2,354		\$28,606	\$4,750
37 Average number of wage-earners, including pieceworkers, employed during each month:							
38 Men 16 years and over—							
39 January.....	11,450	2	226	79	8	1,366	289
40 February.....	12,312	2	224	77	8	1,838	285
41 March.....	12,776	2	223	76	8	1,886	291
42 April.....	12,749	2	249	77	8	1,774	300
43 May.....	13,042	2	249	75	8	1,789	319
44 June.....	13,217	2	255	65	9	1,810	347
45 July.....	12,606	2	250	65	9	1,703	268
46 August.....	12,753	2	238	67	10	1,749	283
47 September.....	13,179	2	237	77	10	1,817	284
48 October.....	12,943	2	236	77	10	1,800	281
49 November.....	13,070	2	248	78	10	1,798	276
50 December.....	12,555	2	245	75	10	1,646	281
51 Women 16 years and over—							
52 January.....	8,184		511	59	20	617	635
53 February.....	8,786		498	59	21	728	626
54 March.....	9,128		478	58	21	711	637
55 April.....	9,289		548	64	24	720	646
56 May.....	9,505		581	59	21	758	676
57 June.....	9,671		583	55	24	765	706
58 July.....	9,003		570	52	22	727	558
59 August.....	9,184		543	56	23	751	576
60 September.....	9,441		556	65	25	772	587
61 October.....	9,069		560	61	26	735	591
62 November.....	9,242		586	60	27	746	587
63 December.....	9,022		574	60	22	670	615
64 Children under 16 years—							
65 January.....	1,825		7	19		195	27
66 February.....	2,007		6	19		204	26
67 March.....	2,118		8	14		238	27
68 April.....	2,180		7	14		231	28
69 May.....	2,309		8	14		253	27
70 June.....	2,410		6	9		271	27
71 July.....	2,247		7	9		259	21
72 August.....	2,208		7	9		273	22
73 September.....	2,215		7	14		267	24
74 October.....	2,090		8	14		229	23
75 November.....	2,098		7	14		233	23
76 December.....	1,997		6	19		203	25
77 Miscellaneous expenses, total.....	\$38,553,794	\$2,170	\$1,853,588	\$95,466	\$43,385	\$4,637,741	\$1,328,739
78 Rent of works.....	\$157,182	\$300	\$24,606	\$1,321	\$234	\$8,766	\$11,350
79 Taxes, not including internal revenue.....	\$281,961		\$7,225	\$350	\$486	\$18,111	\$14,818
80 Rent of offices, interest, insurance, internal revenue taxes, and all other sundry expenses not hitherto included.	\$38,083,259	\$1,645	\$1,821,757	\$93,795	\$42,665	\$4,605,481	\$1,302,571
81 Contract work.....	\$31,392	\$225				\$5,383	
82 Materials used, aggregate cost.....	\$44,954,047	\$2,862	\$1,885,172	\$83,125	\$80,082	\$5,200,595	\$1,780,476
83 Principal materials, total cost.....	\$37,743,966	\$1,905	\$1,465,059	\$80,992	\$76,984	\$4,478,753	\$1,276,239
84 Purchased in raw state.....	\$31,347,252	\$1,905	\$1,145,887	\$68,127	\$58,712	\$3,641,189	\$769,825
85 Purchased in partially manufactured form.....	\$6,396,717		\$319,172	\$12,865	\$18,272	\$837,564	\$506,414
86 Fuel.....	\$444,243		\$14,758	\$567	\$610	\$53,955	\$16,635
87 Rent of power and heat.....	\$26,144		\$8,258	\$161	\$10	\$187	\$357
88 Mill supplies.....	\$37,937		\$1,754	\$99	\$23	\$5,416	\$1,630
89 All other materials.....	\$6,509,133	\$817	\$394,709	\$648	\$552	\$648,301	\$399,574
90 Freight.....	\$192,621	\$140	\$634	\$658	\$1,903	\$13,983	\$86,041
91 Products, total value.....	\$116,767,630	\$8,200	\$4,392,352	\$267,543	\$171,502	\$13,117,000	\$3,868,729

¹Includes establishments distributed as follows: California, 2; Colorado, 2; Delaware, 1; Florida, 1; Georgia, 1; Kansas, 2; Louisiana, 3; Maryland, 5; Massachusetts, 1; Nebraska, 1; West Virginia, 3.

DETAILED SUMMARY, BY STATES AND TERRITORIES: 1905.

Minne- sota.	Missouri.	New Jer- sey.	New York.	North Caro- lina.	Ohio.	Pennsyl- vania.	Tennessee.	Texas.	Virginia.	Wisconsin.	All other states. ¹	
3	17	10	68	39	18	34	37	3	48	10	22	1
\$7,091	\$51,784,817	\$8,582,781	\$8,034,743	\$32,028,980	\$7,492,386	\$1,288,800	\$5,659,448	\$23,105	\$10,997,474	\$1,080,367	\$24,738,075	2
\$500	\$389,151	\$127,361	\$173,379	\$309,750	\$49,643	\$180,550	\$44,811	\$5,000	\$129,029	\$680	\$305,968	3
\$1,100	\$2,271,453	\$287,025	\$1,470,005	\$1,470,005	\$325,268	\$368,201	\$204,766	\$8,000	\$400,773	\$1,000	\$1,045,221	4
\$200	\$913,641	\$215,241	\$214,811	\$1,121,208	\$274,009	\$159,652	\$156,662	\$2,750	\$937,811	\$107,420	\$841,398	5
\$5,291	\$48,210,572	\$7,953,154	\$7,352,999	\$29,128,017	\$6,843,466	\$580,397	\$5,253,269	\$7,355	\$9,529,861	\$971,297	\$22,545,488	6
3	11	8	69	54	12	43	39	4	41	9	17	7
	220	44	93	469	118	54	85		350	78	170	8
	\$322,491	\$50,062	\$84,818	\$525,888	\$115,649	\$72,156	\$83,873		\$378,598	\$93,596	\$203,243	9
	11	5	10	14	18	2	18		38	10	11	10
	\$53,000	\$11,700	\$14,969	\$63,996	\$32,918	\$4,200	\$29,747		\$99,140	\$31,892	\$38,356	11
	209	39	83	453	100	52	67		312	68	159	12
	\$269,491	\$38,362	\$69,849	\$461,892	\$82,731	\$67,956	\$54,126		\$279,458	\$61,704	\$164,887	13
	201	38	76	417	82	45	61		289	65	142	14
	\$264,526	\$38,102	\$65,702	\$449,740	\$77,900	\$63,056	\$51,951		\$269,624	\$59,364	\$157,953	15
	8	1	7	38	18	7	6		23	3	17	16
	\$4,965	\$260	\$4,147	\$12,152	\$4,831	\$4,900	\$2,175		\$9,834	\$2,340	\$6,934	17
2	4,111	466	1,098	7,879	1,211	464	997	11	5,246	338	2,033	18
1	3,250	400	843	4,415	601	414	675	11	2,968	252	1,424	19
1	3,574	435	957	6,323	1,000	428	654	11	3,888	305	1,789	20
\$485	\$1,434,021	\$176,366	\$317,513	\$1,230,088	\$370,596	\$159,198	\$159,884	\$3,125	\$845,006	\$109,545	\$566,375	21
1	1,915	297	394	3,416	494	125	369	1	2,302	161	878	22
\$485	\$818,330	\$137,978	\$177,716	\$816,980	\$191,833	\$76,166	\$109,216	\$1,600	\$587,895	\$76,252	\$334,105	23
	1,446	128	561	1,773	505	286	244	6	1,212	133	857	24
	\$534,921	\$36,038	\$141,355	\$272,712	\$178,555	\$79,912	\$46,438	\$1,350	\$214,947	\$30,592	\$224,148	25
	213	10	2	1,134	1	17	41	1	374	11	54	26
	\$80,770	\$2,350	\$442	\$140,396	\$208	\$3,120	\$4,230	\$175	\$42,164	\$2,701	\$8,122	27
1	1,908	289	377	2,936	346	120	376	4	2,171	154	798	28
1	1,902	308	382	3,362	336	120	388	4	2,101	150	824	29
1	1,925	307	398	3,480	507	120	387	4	2,142	160	859	30
	1,920	308	385	3,462	453	120	382	4	2,289	164	852	31
	1,935	290	404	3,567	458	118	386	4	2,427	168	847	32
	1,934	289	408	3,615	508	120	366	4	2,481	166	838	33
1	1,874	283	393	3,471	533	127	387	4	2,236	166	834	34
1	1,918	278	396	3,403	532	127	376	4	2,304	160	905	35
1	1,914	290	402	3,361	619	135	352	4	2,548	162	964	36
2	1,981	304	395	3,424	495	132	313	4	2,393	157	937	37
2	1,983	319	404	3,445	550	131	374	4	2,335	163	948	38
2	1,786	299	384	3,466	591	130	345	4	2,197	162	930	39
	1,327	126	534	1,465	382	286	254	6	1,035	124	803	40
	1,316	123	539	1,780	388	290	271	6	1,155	129	857	41
	1,463	125	543	1,846	464	289	265	6	1,180	143	899	42
	1,485	126	548	1,843	476	289	238	6	1,249	139	888	43
	1,515	126	544	1,915	476	289	247	6	1,265	143	884	44
	1,522	128	557	1,953	500	291	240	6	1,332	146	863	45
	1,398	122	545	1,870	525	293	234	6	1,122	143	816	46
	1,476	126	607	1,714	522	240	272	6	1,263	139	870	47
	1,497	128	590	1,755	606	290	259	6	1,315	128	862	48
	1,454	140	591	1,675	535	290	188	6	1,242	125	850	49
	1,548	132	578	1,729	568	290	238	6	1,169	121	857	50
	1,351	134	556	1,731	618	295	222	6	1,217	116	835	51
	202	6	1	927	1	17	40	1	322	13	47	52
	201	7	1	1,094	1	17	40	1	328	12	50	53
	211	8	1	1,150	1	17	45	1	335	11	51	54
	221	12	1	1,169	1	17	40	1	374	11	53	55
	228	11	1	1,237	1	17	44	1	403	11	53	56
	216	11	1	1,266	1	17	49	1	467	11	57	57
	215	12	3	1,204	1	17	59	1	374	11	54	58
	215	11	3	1,154	1	17	46	1	384	12	53	59
	216	11	3	1,139	1	17	32	1	421	11	51	60
	213	11	3	1,096	1	17	30	1	376	10	58	61
	215	10	3	1,108	1	17	37	1	359	10	60	62
	203	10	3	1,064	1	17	30	1	345	9	61	63
\$800	\$7,961,304	\$930,491	\$1,642,599	\$9,174,247	\$2,381,568	\$511,620	\$781,349	\$6,009	\$3,186,481	\$843,120	\$3,173,117	64
\$150	\$4,648	\$5,130	\$33,576	\$1,782	\$11,915	\$4,759	\$4,252	\$72	\$23,194	\$16,630	\$4,497	65
\$24	\$67,035	\$6,966	\$9,179	\$62,590	\$21,852	\$7,390	\$5,786	\$250	\$30,323	\$3,076	\$26,500	66
\$626	\$7,889,621	\$918,395	\$1,599,784	\$9,088,950	\$2,347,801	\$494,847	\$771,136	\$5,687	\$3,132,964	\$823,414	\$3,142,120	67
			\$60	\$20,925		\$4,624	\$175					68
\$1,044	\$10,889,403	\$737,323	\$1,805,923	\$8,961,772	\$2,746,892	\$657,906	\$801,304	\$14,361	\$4,686,516	\$568,907	\$4,047,324	69
\$777	\$9,792,859	\$439,831	\$1,383,140	\$7,505,608	\$2,512,456	\$610,747	\$605,159	\$12,863	\$3,839,502	\$502,890	\$3,158,205	70
\$777	\$8,113,053	\$368,344	\$1,203,767	\$6,367,009	\$2,024,671	\$519,209	\$552,248	\$12,863	\$3,374,968	\$485,272	\$2,639,426	71
	\$1,679,806	\$71,487	\$119,373	\$1,138,599	\$487,785	\$91,538	\$52,911		\$464,534	\$17,618	\$518,779	72
	\$88,405	\$13,795	\$12,097	\$85,483	\$18,615	\$4,728	\$17,109		\$57,922	\$7,527	\$52,037	73
		\$44	\$7,386	\$1,076	\$4,197	\$903	\$105	\$50	\$532	\$1,886	\$992	74
	\$2,845	\$1,612	\$1,243	\$7,203	\$768	\$1,685	\$1,062		\$4,787	\$2,707	\$5,103	75
\$267	\$1,003,663	\$279,567	\$396,913	\$1,358,886	\$176,230	\$23,239	\$167,425	\$1,448	\$773,413	\$53,850	\$829,131	76
	\$1,631	\$2,474	\$8,144	\$3,516	\$34,626	\$16,604	\$10,004		\$10,360	\$47	\$1,856	77
\$4,421	\$27,836,422	\$2,656,798	\$4,973,314	\$25,488,721	\$7,247,292	\$1,818,214	\$2,355,514	\$29,722	\$10,662,268	\$1,973,775	\$9,895,843	78

TABLE 13.—CHEWING AND SMOKING TOBACCO AND SNUFF—

	United States.	Arizona.	Illinois.	Indiana.	Iowa.	Kentucky.	Michigan.
Power:							
79 Number of establishments reporting.....	229		17	4	2	28	9
80 Total horsepower.....	22,316		710	46	27	3,086	1,357
Owned—							
Engines—							
Steam—							
81 Number.....	251		10	3	1	34	12
82 Horsepower.....	16,068		314	34	25	2,810	1,030
Gas and gasoline—							
83 Number.....	14		5				2
84 Horsepower.....	182		86				37
Water wheels—							
85 Number.....	9						
86 Horsepower.....	244						
Water motors—							
87 Number.....	1						
88 Horsepower.....	10						
Electric motors—							
89 Number.....	347		25			20	33
90 Horsepower.....	3,781		244			261	281
91 Other power, horsepower.....	1,258		3				
Rented—							
Electric motors—							
92 Number.....	72		11	1	1	1	5
93 Horsepower.....	553		58	12	2	15	9
94 Other kind, horsepower.....	220		5				
95 Furnished to other establishments, horsepower.....	319		10				

DETAILED SUMMARY, BY STATES AND TERRITORIES: 1905—Continued.

Minne- sota.	Missouri.	New Jersey.	New York.	North Caro- lina.	Ohio.	Pennsyl- vania.	Tennessee.	Texas.	Virginia.	Wisconsin.	All other states.	
	4,929	809	23 373	26 2,672	12 607	13 725	21 1,060	1 7	88 2,387	6 447	15 3,014	79 80
	16 2,415	13 822	12 281	37 1,793	11 441	5 350	27 1,040		44 2,284	4 383	24 2,046	81 82
			1 6			2 6			3 27		1 20	83 84
		2 44	1 20								6 180	85 86
				1 10								87 88
	115 1,259 1,255	2 1		65 816	1 6	43 241	1 20		3 62	1 8	38 581	89 90 91
		1 1	10 61 5	3 53 163	7 50 110 6	7 28 100		1 7	3 14	5 56	16 187 140	92 93 94 95

LUMBER AND TIMBER PRODUCTS

(581)

LUMBER AND TIMBER PRODUCTS.

By JASPER E. WHELCHER, Expert Chief of Division.

The classification "lumber and timber products" embraces a wide variety of commodities, which may be divided roughly into two classes, namely, products of the ax and products of the saw. The former, the raw material for which is the standing tree, includes among its principal products saw logs; shingle, stave, and heading bolts; telegraph and telephone poles; fence posts; and railway ties. The second group, with the log or bolt as raw material, comprises lumber, shingles, cooperage materials, veneers, laths, etc., and, through additional processes when carried on in connection with the manufacture of these products, its scope is enlarged

to cover finished lumber, sash, doors, blinds, interior finish, etc.

Three separate operations, commonly designated logging, sawing, and planing or remanufacturing, are employed in the manufacture of these products. The three branches are largely interdependent, and taken as a whole constitute the lumber industry.

Table 1 is a comparative summary of the statistics of the lumber industry as returned at the censuses of 1850 to 1905, inclusive, with the percentages of increase for each census period.

TABLE 1.—LUMBER AND TIMBER PRODUCTS—COMPARATIVE SUMMARY, WITH PER CENT OF INCREASE:
1850 TO 1905.

	CENSUS.							PER CENT OF INCREASE.					
	1905	1900	1890	1880	1870	1860	1850	1900 to 1905	1890 to 1900	1880 to 1890	1870 to 1880	1860 to 1870	1850 to 1860
Number of establishments..	19,127	23,053	22,617	25,708	25,832	20,659	18,769	117.0	1.9	112.0	10.5	25.0	10.1
Capital.....	\$517,224,128	\$400,857,337	\$397,861,928	\$181,186,122	\$143,493,232	\$74,530,090	\$41,444,364	29.0	0.8	119.6	26.3	92.5	79.8
Salaries.....	18,485	14,238	20,375	(*)	(*)	(*)	(*)	29.8	130.1	.....	.....	.....	.....
Wage-earners, average number.....	404,626	413,335	311,964	147,956	149,997	75,862	55,810	12.1	32.5	110.8	11.4	97.7	35.9
Total wages.....	\$183,021,519	\$148,007,845	\$87,935,284	\$31,845,974	\$40,009,162	\$21,702,465	\$13,787,852	23.7	68.3	176.1	120.4	84.4	57.4
Men 16 years and over..	401,209	408,058	306,415	141,564	146,047	75,171	55,358	11.7	33.2	116.4	13.1	94.3	35.8
Wages.....	\$182,318,197	\$147,115,928	\$87,170,668	(*)	(*)	(*)	(*)	23.9	68.8	.....	.....	.....	.....
Women 16 years and over.....	911	1,728	2,281	425	682	601	452	147.3	124.2	436.7	137.7	11.3	52.9
Wages.....	\$236,995	\$331,298	\$363,399	(*)	(*)	(*)	(*)	128.5	18.8	.....	.....	.....	.....
Children under 16 years..	2,506	3,549	3,268	5,967	3,268	(*)	(*)	129.4	8.6	145.2	82.6	.....	.....
Wages.....	\$466,327	\$560,619	\$400,217	(*)	(*)	(*)	(*)	116.8	40.1	.....	.....	.....	.....
Miscellaneous expenses.....	\$82,886,280	\$40,295,488	\$23,844,637	(*)	(*)	(*)	(*)	106.3	69.0	.....	.....	.....	.....
Cost of materials used.....	\$183,786,210	\$242,685,257	\$242,562,296	\$146,155,385	\$103,343,430	\$44,581,753	\$28,328,792	124.3	0.1	66.0	41.4	131.8	57.4
Value of products.....	\$580,022,690	\$555,197,271	\$437,957,382	\$233,268,729	\$210,159,327	\$96,715,856	\$60,413,187	4.5	26.8	87.8	11.1	117.3	60.1

* Decrease.

* Includes proprietors and firm members, with their salaries; number only reported in 1900 and 1905, but not included in this table.

* Not reported separately.

* Not reported.

* Does not include the value of rough lumber remanufactured in planing mills connected with sawmills producing it.

* Includes wages and amount paid for contract work in dependent logging camps.

In comparing the figures of the censuses presented in Table 1 certain facts should be borne in mind. At the census of 1905 the canvass of establishments was confined to merchant mills and timber camps of similar magnitude, thus excluding the custom mills and petty establishments in all branches of the industry.

The figures for the census of 1900 have been revised, so as to eliminate, as far as practicable, the reports for such establishments as would not have come within the scope of the census of 1905. The figures

for these two censuses are therefore, with certain qualifications explained below, substantially comparable. No such revision of the figures of previous censuses has been attempted, however, and this fact should be considered when comparisons involving them are made.

The 19,127 establishments for 1905 include sawmills, whether operated separately or in conjunction with logging camps or planing mills, or both, and independent logging or timber camps. The same classes

of establishments were enumerated at the censuses of 1900 and 1890, but prior to the last-named census timber camps, or logging operations not conducted under a common ownership or management with milling plants, were not enumerated. Furthermore, veneer mills and establishments engaged in making split shingles, which have been classed as lumber and timber products since 1880, were classified separately at that and preceding censuses, and therefore have not been included in the statistics for those censuses.

Capital, at the census of 1905, embraces the total investment in sawmills, planing mills operated in connection with sawmills, and logging camps, whether conducted by milling establishments or operated independently, but does not include capital invested in timber lands and standing timber. The composition of this item for 1900 and 1890 has been made the same as that for 1905 by eliminating investments in timber lands and standing timber. Prior to the census of 1890 no separate inquiry as to investments in timber lands or standing timber was provided in the schedule, and it is probable that at the earlier censuses this item was included with other capital in the returns of some establishments and omitted from those of others. The amount of capital reported by lumbermen as invested in timber lands and standing timber at the census of 1905 is shown, by states and territories, in Table 1 of "Timber regions of the United States," page 64 in this report.

Under wage-earners, for 1905, are included all employees, other than salaried officials, clerks, etc., engaged in the three branches of the industry—logging plants, whether operated in connection with mill plants or independently; sawmills; and planing mills connected with sawmills. This item for 1905 includes the same classes of employees as in 1900, but the form of inquiry used in ascertaining the average number of wage-earners was slightly different. In 1900 wage-earners engaged in the transportation of logs to the mill were returned under a separate heading from other logging employees. In certain sections of the country this work is confined to a period of from five to seven months, and in many cases the same wage-earners are employed during the remainder of the year in felling, skidding, swamping, etc. It was found that duplications crept into the replies to the two inquiries relating to logging employees, resulting in a slightly inflated average number. There was no duplication of this character in the returns for 1905. Accompanying the inquiry relating to wage-earners in the schedule used at the later census was the printed instruction to include under the single heading "logging" all wage-earners engaged in logging operations—felling, skidding, transporting, driving, etc., from the stump to the mill. The schedule of the census of 1900, with respect to the inquiry concerning logging employees, was similar to that used in 1890, prior to which census the in-

quiry relating to wage-earners did not differentiate those engaged in logging from those employed in mills. Furthermore, the average number of wage-earners shown in Table 1 for 1890 does not include wage-earners engaged in logging operations conducted by milling establishments.

Miscellaneous expenses for 1905 include all miscellaneous expenses incurred in logging operations, in sawmills, and in planing mills connected with sawmills. The same factors composed this item in 1900, but in 1890 amounts paid for contract logging and for the keep of animals were included, along with all other expenses of logging operations conducted by milling establishments, in the cost of materials.

The cost of materials for 1905 includes the stumpage value of all timber cut during the year in logging camps and the cost of supplies consumed in these plants, but not the board of men and the keep of horses and cattle. This item also includes the cost of logs, bolts, rough lumber, and all other materials purchased and used in sawmills and planing mills operated in connection with sawmills, together with all sums paid for mill supplies, freight, fuel, and rent of power and heat. For 1900 this heading includes all the items included for 1905 and in addition the value of rough lumber manufactured in sawmills that was dressed or remanufactured in planing mills connected with them.

In 1900 rough lumber manufactured in sawmills and dressed or remanufactured in planing mills connected with them was treated as though purchased from outside sources, and its value was entered on the schedule, under "cost of planing mill materials," with rough lumber actually bought for use in these planing mills, the form of the inquiry not distinguishing the source of supply. In like manner the value of rough lumber, remanufactured in planing mills connected with sawmills producing it, entered twice into the total value of products of the industry, once as rough lumber, a sawmill product, and again in its finished condition as a planing mill product. In consequence of this repetition the totals for cost of materials and value of products were to that extent excessive. The schedule used at the census of 1890 was similar in this particular to that of 1900. The schedule used at the census of 1905, however, was so framed as to avoid these duplications and to show for each establishment the net cost of materials used and the true value of products as marketed.

At the census of 1905 the value of the rough lumber remanufactured in planing mills connected with sawmills producing it was \$120,242,249, and had the method been followed that was in use in 1900 and 1890, the total cost of materials would have been \$304,028,459, and the total value of products \$700,264,939, instead of \$183,786,210 and \$580,022,690, respectively, as shown in Table 1. It is probable that this duplication in 1900 and 1890 formed substantially

the same percentage of the totals into which it entered as would have been the case had it been similarly handled in 1905; therefore in making comparisons involving these totals some such degree of allowance should be made for its presence. In 1890 the cost of materials included, in addition to the factors composing this item for 1900 and 1905, all expenses incurred in the operation of dependent logging camps and the amount paid for contract logging.

The item of products for 1905 includes: (1) The value at the point where produced of all timber products, except that part of the output of logging plants operated by milling establishments which was used as material in the latter; (2) the value to the establishment of all sawmill products, except that part which was used as material in planing mills connected with the sawmills producing it; and (3) the value of all products of planing mills operated in connection with sawmills. This excludes the value of custom sawed lumber, but includes the amount received for sawing it.

An interesting phase of the figures shown in Table 1 is the relative unimportance to its growth and development of the number of establishments engaged in the lumber industry. While this number at the census of 1850 was 18,769 and at the census of 1905, 19,127, an increase of only 358, or 1.9 per cent, the capital invested in the industry during the same period rose from \$41,444,364 to \$517,224,128, an increase of \$475,779,764, or 1,148 per cent, and the value of products multiplied almost tenfold, from \$60,413,187 to \$580,022,690. This feature may appear more striking when presented in terms of the average value of products per establishment at the two censuses. In 1850 this was \$3,219; in 1905 it had grown to \$30,325; while a steadily expanding capacity in the average plant is shown at each intervening census. The bulky character of lumber products tends naturally to confine their market. That the number of establishments has fluctuated within comparatively narrow limits since 1850, while the volume of their product has increased enormously, is due in the main to a rapid and remarkable development of the transportation facilities of the country. Another factor that has aided in this concentration of the industry into larger establishments has been the improvement in sawmill machinery.

The number of persons employed reported at the census of 1905 was over seven times that in 1850, while the wages paid increased over twelvefold, which shows a substantial growth in the average annual earnings of employees.

In 1850 the total of salaries and wages and cost of materials constituted 69.7 per cent of the value of products, and at the census of 1905, 66.7 per cent. The ratio between the total of these items and the value of products at the two censuses has therefore not materially changed. In 1850, however, salaries and wages formed 22.8 per cent and the cost of materials 46.9 per

cent of the value of products, whereas in 1905 salaries and wages had increased to 35 per cent and materials declined to 31.7 per cent of the value of products. This actual reduction in the ratio of cost of materials to value of products, in spite of the large increase in the value of stumpage, shows clearly the great saving of material effected by the introduction of improved mill equipment.

As noted above, the operations of independent timber camps prior to the census of 1890 were not included as a part of the lumber industry of the country, so that the figures for the censuses from 1850 to 1880, inclusive, are not strictly comparable with those for the later censuses. In its scope the inquiry relating to the lumber industry in 1890 was identical with that for 1900 and 1905, and it is therefore practicable to make an accurate comparative analysis of the figures for these periods.

At the census of 1905 the total amount of capital invested in the industry was \$517,224,128; in 1900, \$400,857,337; and in 1890, \$397,861,928. There was an increase for 1905 of \$116,366,791, or 29 per cent, over 1900 and of \$119,362,200, or 30 per cent, over 1890. The total number of persons employed in all branches of the industry reported in 1905 was 4,462, or 1 per cent less than in 1900, but 90,772, or 27.3 per cent, greater than the number reported in 1890. As previously explained, however, the decrease in this item between 1900 and 1905 is apparent rather than real. The total amount paid in salaries and wages reported was an increase of \$42,385,909, or 26.4 per cent, over 1900 and \$103,756,570, or 104.7 per cent, over 1890. Miscellaneous expenses increased \$42,840,792, or 106.3 per cent, between 1900 and 1905 and \$59,291,643, or 248.7 per cent, between 1890 and 1905.

As previously explained, the cost of materials in 1890 contains, in addition to the factors composing this item for 1900 and 1905, all expenses incurred in dependent logging camps and the amount paid for contract logging. Moreover, for purposes of comparison, the value of rough lumber remanufactured in planing mills connected with sawmills producing it, and amounting for 1905 to \$120,242,249, should be added to the items of materials and products for that year given in Table 1. The cost of materials under this arrangement for 1905 was \$304,028,459; in 1900, \$242,685,257; and in 1890, \$242,562,296. The increase over 1900 was therefore \$61,343,202, or 25.3 per cent, and over 1890, \$61,466,163, or 25.3 per cent. The total value of products reported in 1905 was \$700,264,939; in 1900, \$555,197,271; and in 1890, \$437,957,382, showing an increase in 1905 over 1900 of \$145,067,668, or 26.1 per cent, and over 1890 of \$262,307,557, or 59.9 per cent.

While on the whole a steady growth is indicated at each of the censuses covered by Table 1, periods of unusual activity in the industry are shown in the

returns for 1870 and 1890. At the former census the increases over 1860 ranged from 25 per cent in the number of establishments to 131.8 per cent in the cost of materials used, with gains of 92.5 per cent, 84.4 per cent, and 117.3 per cent in capital, wages, and value of products, respectively. In 1890, while the number of establishments reporting was actually smaller than had been enumerated ten years before, having decreased from 25,708 to 22,617, a loss of 3,091, or 12 per cent, the amount of capital invested increased

\$216,675,806, or 119.6 per cent, and the value of products \$204,688,653, or 87.8 per cent; while the number of wage-earners, amount of wages, and cost of materials show, respectively, increases of 110.8 per cent, 176.1 per cent, and 66 per cent.

After a view of the industry in the country at large, as presented in Table 1, it is interesting to examine the statistics for the several states and territories, as shown in Table 2. This table covers the censuses of 1900 and 1905.

TABLE 2.—LUMBER AND TIMBER PRODUCTS—COMPARATIVE SUMMARY, BY STATES AND TERRITORIES: 1905 AND 1900.

STATE OR TERRITORY.	Census.	Number of establishments.	Capital.	WAGE-EARNERS AND WAGES.								Cost of materials used.	Value of products, including amount received for contract and custom work.
				Total.		Men 16 years and over.		Women 16 years and over.		Children under 16 years.			
				Average number.	Wages.	Average number.	Wages.	Average number.	Wages.	Average number.	Wages.		
United States...	1905 1900	19,127 23,053	\$517,224,128 400,857,337	404,626 413,335	\$183,021,519 148,007,845	401,209 408,058	\$182,318,197 147,115,928	911 1,728	\$236,995 331,298	2,506 3,549	\$466,327 560,619	\$183,786,210 242,685,257	\$580,022,690 555,197,271
Alabama.....	1905 1900	590 796	12,625,688 7,855,629	14,682 14,450	5,062,139 3,478,482	14,248 14,032	4,980,445 3,420,692	218 67	52,962 11,757	216 351	28,732 46,033	3,609,616 4,545,034	15,939,814 12,522,423
Alaska.....	1905 1900	6 10	205,238 150,245	63 78	71,870 55,959	62 78	71,470 55,959	..... .....	..... .....	1	400	77,914 67,490	245,380 154,666
Arizona.....	1905 1900	5 14	1,428,339 596,757	520 368	394,767 257,470	519 356	394,367 253,470	..... .....	..... .....	1 12	400 4,000	162,361 156,035	960,778 547,790
Arkansas.....	1905 1900	852 915	27,034,651 15,047,973	22,298 23,990	9,561,843 7,136,277	22,063 23,728	9,513,737 7,090,518	5 9	1,420 1,485	230 253	46,686 44,274	6,829,651 9,811,143	28,065,171 24,357,503
California.....	1905 1900	308 276	25,709,302 15,130,648	13,181 10,664	8,643,637 5,147,504	13,111 10,565	8,618,684 5,123,734	22 40	11,750 13,427	48 59	13,203 10,403	2,652,951 4,628,765	18,275,891 13,717,785
Colorado.....	1905 1900	87 116	1,445,132 760,852	1,058 1,074	623,365 474,747	1,046 1,062	618,541 470,337	11 11	4,514 4,230	1 1	310 180	490,370 568,086	1,753,791 1,572,329
Connecticut.....	1905 1900	114 139	839,567 791,037	1,069 1,202	493,031 450,955	1,069 1,202	493,031 450,955	..... .....	..... .....	..... .....	..... .....	499,802 553,460	1,562,254 1,748,881
Delaware.....	1905 1900	75 67	242,175 343,832	322 587	102,410 134,481	322 552	102,410 129,713	..... 23	..... 3,113	..... 12	..... 1,655	143,979 459,441	430,443 459,441
Florida.....	1905 1900	198 365	11,556,330 8,542,156	10,408 9,774	3,747,572 3,031,733	10,329 9,630	3,734,270 3,009,848	19 38	5,200 6,999	60 106	8,102 14,886	2,870,497 4,173,258	10,901,650 10,775,479
Georgia.....	1905 1900	793 904	10,717,658 7,605,257	15,364 17,183	4,971,300 3,959,214	15,220 17,054	4,948,016 3,945,493	..... 11	..... 1,800	144 118	23,284 11,921	2,996,891 4,140,408	14,435,563 13,341,160
Idaho.....	1905 1900	95 93	3,131,991 683,490	1,363 726	813,080 289,778	1,356 719	810,986 288,423	6 7	1,844 1,355	1	250	771,437 310,940	2,834,508 908,670
Illinois.....	1905 1900	269 408	6,016,586 3,952,507	4,495 3,963	1,904,669 1,500,623	4,474 3,803	1,900,186 1,471,806	2 33	640 8,040	19 127	3,843 20,777	3,326,460 4,046,236	7,081,470 7,190,114
Indian Territory.....	1905 1900	41 40	183,794 92,561	312 227	148,017 56,501	312 225	148,017 50,111	..... 1	..... 120	..... 1	..... 270	206,765 65,129	588,078 189,373
Indiana.....	1905 1900	774 1,281	9,179,298 9,096,251	6,892 12,015	2,858,410 4,508,135	6,845 11,917	2,847,859 4,491,350	11 16	3,636 3,861	36 82	6,915 12,924	7,648,250 9,612,550	14,559,662 19,979,971
Iowa.....	1905 1900	49 118	7,784,079 6,805,841	1,935 2,957	946,865 1,063,645	1,873 2,843	933,573 1,076,552	11 5	2,580 1,229	51 109	10,712 15,864	2,781,420 5,797,548	5,610,772 8,487,261
Kansas.....	1905 1900	4 26	8,135 34,345	11 78	4,306 21,451	11 77	4,306 21,361	..... .....	..... .....	..... 1	..... 120	4,875 28,067	20,700 79,581
Kentucky.....	1905 1900	854 901	11,799,697 7,246,823	9,718 9,671	3,810,917 3,051,483	9,622 9,509	3,793,579 3,025,632	7 4	1,446 887	89 158	15,892 24,964	5,354,554 6,045,557	14,539,000 13,338,533
Louisiana.....	1905 1900	421 342	37,385,028 13,793,193	26,353 14,254	12,129,065 4,652,440	26,125 14,146	12,081,590 4,633,492	2 1	400 400	226 107	47,075 18,548	8,796,944 7,253,038	35,192,374 17,294,444
Maine.....	1905 1900	752 647	15,083,395 12,732,673	12,028 9,671	5,429,798 3,439,507	11,989 9,613	5,421,595 3,426,884	27 54	6,154 11,674	12 4	2,049 949	7,084,131 6,594,268	17,937,683 13,281,561
Maryland.....	1905 1900	203 246	1,735,837 1,669,808	1,979 2,634	860,132 653,545	1,949 2,388	856,171 633,589	7 143	1,000 13,778	23 103	2,961 6,178	1,043,346 962,777	2,750,339 2,495,169
Massachusetts.....	1905 1900	296 366	3,283,773 4,470,006	1,942 3,548	961,368 1,502,524	1,927 3,494	957,730 1,487,618	11 50	3,023 14,046	4 4	615 860	2,428,441 2,957,624	4,903,714 6,277,729
Michigan.....	1905 1900	766 1,343	38,507,207 43,616,572	27,460 39,614	13,057,977 16,076,499	27,252 39,103	13,011,743 15,967,908	72 251	15,895 54,288	136 260	30,339 54,303	14,182,066 22,260,664	40,569,335 53,915,647
Minnesota.....	1905 1900	222 288	28,953,854 32,972,462	17,213 20,524	8,651,071 9,493,637	17,192 20,477	8,646,587 9,482,066	3 10	490 1,985	18 37	3,994 9,586	12,302,578 20,964,762	33,183,309 42,689,932
Mississippi.....	1905 1900	618 570	23,439,225 10,117,421	21,233 14,830	8,780,355 4,299,082	21,037 14,756	8,735,977 4,287,032	42 10	11,891 2,450	154 64	32,487 9,600	5,893,360 5,965,514	24,035,539 15,286,763

LUMBER AND TIMBER PRODUCTS.

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TABLE 2.—LUMBER AND TIMBER PRODUCTS—COMPARATIVE SUMMARY, BY STATES AND TERRITORIES:
1905 AND 1900—Continued.

STATE OR TERRITORY.	Census.	Number of establishments.	Capital.	WAGE-EARNERS AND WAGES.								Cost of materials used.	Value of products, including amount received for contract and custom work.
				Total.		Men 16 years and over.		Women 16 years and over.		Children under 16 years.			
				Average number.	Wages.	Average number.	Wages.	Average number.	Wages.	Average number.	Wages.		
Missouri.....	1905	374	\$8,021,437	9,091	\$3,637,402	8,866	\$3,592,104	60	\$15,391	105	\$29,907	\$2,650,497	\$10,903,783
	1900	647	7,801,738	8,542	2,818,640	8,387	2,791,344	51	8,010	104	15,28	4,806,187	10,540,590
Montana.....	1905	41	4,605,052	2,180	1,479,255	2,179	1,479,105	1	150			426,825	3,024,674
	1900	83	2,101,274	2,318	1,170,097	2,307	1,169,857	1	210			885,199	2,840,268
Nebraska.....	1905	4	25,314	11	5,381	11	5,381			1	125	5,369	19,624
	1900	11	21,100	40	13,161	39	13,03					13,150	37,390
New Hampshire.....	1905	386	6,079,442	4,594	2,017,131	4,570	2,011,281	23	5,610	1	240	2,817,671	7,519,431
	1900	397	7,129,509	7,592	2,652,694	7,422	2,635,418	69	15,881	11	1,495	3,422,470	9,023,574
New Jersey.....	1905	114	825,375	900	387,910	899	387,648			1	312	313,611	1,116,884
	1900	127	1,045,197	1,021	407,268	1,019	406,968			2	300	800,104	1,755,115
New Mexico.....	1905	23	1,886,257	1,134	535,983	1,117	533,540			17	2,443	254,277	1,315,364
	1900	27	178,060	608	182,222	607	182,147	1	75			120,284	402,005
New York.....	1905	820	12,599,876	8,186	3,649,389	8,161	3,643,230	20	5,350	5	809	5,309,703	13,310,413
	1900	1,134	13,413,300	10,405	3,801,319	10,308	3,784,034	76	12,925	21	4,360	6,953,967	15,131,385
North Carolina.....	1905	1,212	10,068,358	14,491	4,399,878	14,346	4,379,709	13	1,835	132	18,334	4,470,020	15,731,379
	1900	1,304	8,649,158	17,850	3,747,093	17,623	3,720,135	35	4,447	192	22,511	5,508,598	14,474,281
North Dakota ¹	1900	4	10,155	31	6,320	31	6,320					7,037	24,200
Ohio.....	1905	829	11,279,750	6,442	2,878,770	6,422	2,874,571	8	1,958	12	2,241	5,099,015	12,567,992
	1900	1,241	10,449,544	10,689	3,995,113	10,553	3,971,152	79	16,306	57	7,655	9,358,669	19,780,337
Oregon.....	1905	402	11,038,323	7,284	4,617,826	7,248	4,605,841	19	5,622	17	6,363	4,412,422	12,483,908
	1900	372	6,254,940	5,531	2,664,261	5,438	2,643,244	73	15,532	20	5,485	4,785,148	10,257,169
Pennsylvania.....	1905	1,212	22,677,322	16,674	7,959,875	16,518	7,917,726	67	20,740	89	21,409	10,005,505	31,642,390
	1900	1,672	28,450,008	22,671	9,147,924	22,509	9,120,508	42	7,726	120	19,690	14,177,091	35,031,908
Rhode Island.....	1905	22	156,141	198	95,763	198	95,763					100,177	401,170
	1900	23	147,280	205	68,697	204	68,579			1	118	66,111	222,083
South Carolina.....	1905	439	7,237,725	9,656	2,578,320	9,599	2,571,962	6	970	51	5,388	1,617,713	6,791,451
	1900	466	3,469,984	6,622	1,356,705	6,582	1,352,492	4	300	36	3,913	1,809,009	4,942,362
South Dakota.....	1905	18	163,902	164	97,096	164	97,096					38,987	275,190
	1900	29	198,370	356	163,431	356	163,431					165,025	445,861
Tennessee.....	1905	1,032	16,638,882	14,900	5,499,923	14,608	5,452,328	115	22,869	177	24,726	8,520,212	21,580,120
	1900	1,106	9,616,128	13,010	3,897,275	12,698	3,847,023	117	25,742	195	24,510	7,934,523	16,709,104
Texas.....	1905	299	18,426,242	13,332	5,879,744	13,299	5,873,733	3	432	30	5,579	3,642,484	16,278,240
	1900	474	11,900,657	11,724	4,487,005	11,683	4,479,486	3	296	38	7,223	7,467,225	16,052,966
Utah.....	1905	41	87,425	89	47,347	84	45,856	3	995	2	496	55,264	133,044
	1900	48	150,767	243	70,710	236	69,669	4	625	3	416	49,578	186,905
Vermont.....	1905	418	5,409,750	4,216	1,809,503	4,196	1,803,744	15	4,903	5	856	2,183,068	5,888,441
	1900	497	4,956,806	5,312	1,629,537	5,174	1,610,885	98	13,386	40	5,266	2,569,840	5,940,610
Virginia.....	1905	804	9,839,646	12,190	3,943,642	12,033	3,916,154			157	27,488	3,339,475	13,040,860
	1900	886	6,186,405	11,901	3,292,487	11,536	3,257,757	157	17,384	208	17,846	4,716,439	11,631,539
Washington.....	1905	1,004	40,953,816	28,023	18,613,318	27,965	18,592,806	41	15,298	17	5,214	16,325,954	49,572,512
	1900	778	19,045,843	19,850	10,733,956	19,757	10,705,935	50	16,412	43	11,609	13,043,512	30,286,280
West Virginia.....	1905	633	12,442,475	10,490	4,794,108	10,420	4,786,209	8	1,380	32	6,519	3,763,461	14,933,472
	1900	609	7,057,945	8,229	2,716,370	8,172	2,705,786	4	849	53	9,735	3,823,400	10,190,118
Wisconsin.....	1905	576	37,677,205	23,118	13,857,446	22,960	13,819,255	32	8,437	126	29,754	15,818,278	44,395,766
	1900	790	47,903,678	33,862	13,908,866	33,347	13,799,347	80	18,238	435	91,281	28,278,493	57,882,001
Wyoming.....	1905	28	312,396	297	145,313	296	145,103	1	210			40,420	426,433
	1900	31	486,106	685	298,997	685	298,997					204,924	729,524
All other states.....	² 1905	4	476,038	97	63,182	97	63,182					117,143	292,933
	³ 1900	26	125,046	56	11,935	56	11,935					24,340	61,491

¹ None reported in 1905.

² Includes establishments distributed as follows: Nevada, 2; Oklahoma, 2.

³ Includes establishments distributed as follows: Nevada, 2; Oklahoma, 24.

The lumber industry is widely distributed, and is in this respect essentially different from others of similar magnitude and importance, such as the manufacture of textiles, slaughtering and meat packing, and iron and steel, which are more or less concentrated in certain sections or states. Lumber products were manufactured on a commercial scale in every state and territory in 1900, and in all but 1 (North Dakota) at the census

of 1905. At the later census the industry was an important one in 36 states, ranked first in 9 states and second in 12.

The brief period from 1900 to 1905 was one of marked changes in this industry. A general realignment of the states with respect to relative production occurred. Washington passed Michigan, Wisconsin, Minnesota, and Pennsylvania, the 4 leading states

in 1900, advancing from fifth to first place in the industry. Louisiana, which in 1900 was ninth in the United States, rose to first place in the southern group of states and to fourth in the country. Mississippi advanced from twelfth to eighth place; California, from fifteenth place to tenth; Alabama, from nineteenth to thirteenth; and Tennessee from tenth to ninth. Wisconsin, Michigan, and Minnesota, which occupied first, second, and third places, respectively, in 1900, contributing 27.8 per cent of the total product of the industry at that census, dropped to second, third, and fifth places, respectively; Pennsylvania, from fourth to sixth; Indiana, from seventh to sixteenth; and Ohio, from eighth to twenty-first. This remarkable shifting of the centers of activity between regions and from one state to another in the same section marks the rapid culmination of movements which were first clearly disclosed by the census of 1890.

Washington ranked first in the value of lumber products reported in 1905, closely followed by Wisconsin, and held first place with Louisiana second in point of actual increase in this item between the two censuses. Other states that made notable gains in the value of their output were Mississippi, Tennessee, West Virginia, Maine, California, Arkansas, Alabama, and Oregon, ranking in the order named. As pointed out in the discussion of Table 1, the value of the rough lumber remanufactured in planing mills connected with the sawmills producing it entered twice into the total value of the product of the industry in 1900, but only once for 1905. The extent of the inflation in the value of products due to this duplication in 1900 varied among the different states, and it is probable that conditions with respect to it had not materially changed at the census of 1905. Since the amount of the duplication can not be determined accurately for 1900, it may be offset, for purposes of comparison, by including it in the value of products for 1905. Table 3 has therefore been prepared, which shows by states and territories the value of products of the lumber industry for 1900 and 1905, with the value of the rough lumber remanufactured in planing mills connected with the sawmills producing it included for both censuses.

TABLE 3.—Value of lumber and timber products, including the duplication in the value of remanufactured rough lumber, by states and territories: 1905 and 1900.

STATE OR TERRITORY.	VALUE OF PRODUCTS.	
	1905	1900
United States.....	\$700,264,939	\$555,197,271
Alabama.....	20,157,462	12,522,423
Alaska.....	274,345	154,666
Arizona.....	1,109,127	547,790
Arkansas.....	35,151,489	24,357,503
California.....	21,638,564	13,717,785
Colorado.....	2,073,199	1,572,329
Connecticut.....	1,606,467	1,748,881
Delaware.....	463,658	459,441
Florida.....	12,889,585	10,775,479
Georgia.....	16,716,594	13,341,160
Idaho.....	3,810,657	908,670
Illinois.....	8,094,379	7,190,114
Indian Territory.....	595,617	189,373
Indiana.....	14,986,255	19,979,971

TABLE 3.—Value of lumber and timber products, including the duplication in the value of remanufactured rough lumber, by states and territories: 1905 and 1900—Continued.

STATE OR TERRITORY.	VALUE OF PRODUCTS.	
	1905	1900
Iowa.....	\$8,358,144	\$8,487,261
Kansas.....	20,700	79,581
Kentucky.....	15,073,587	13,338,533
Louisiana.....	49,201,068	17,294,444
Maine.....	19,968,525	13,281,561
Maryland.....	2,914,078	2,495,169
Massachusetts.....	5,389,263	6,277,729
Michigan.....	44,247,338	53,915,647
Minnesota.....	44,782,487	42,689,932
Mississippi.....	29,614,987	15,286,763
Missouri.....	12,556,688	10,540,590
Montana.....	4,209,713	2,846,268
Nebraska.....	19,624	37,390
New Hampshire.....	8,060,545	9,023,574
New Jersey.....	1,160,651	1,755,115
New Mexico.....	1,522,247	402,005
New York.....	14,939,115	15,131,385
North Carolina.....	18,619,377	14,474,281
North Dakota.....	(1)	24,200
Ohio.....	13,151,961	19,780,337
Oregon.....	17,009,237	10,257,169
Pennsylvania.....	33,779,240	35,031,908
Rhode Island.....	401,170	222,083
South Carolina.....	8,442,794	4,942,362
South Dakota.....	297,190	445,861
Tennessee.....	22,686,790	16,709,104
Texas.....	26,272,373	16,052,966
Utah.....	137,734	186,905
Vermont.....	7,954,234	5,940,610
Virginia.....	14,586,799	11,631,539
Washington.....	61,162,834	30,286,280
West Virginia.....	15,908,766	10,190,118
Wisconsin.....	57,495,616	57,882,001
Wyoming.....	446,503	729,524
All other states.....	306,163	61,491

¹ None reported in 1905.

² Includes Nevada and Oklahoma.

With this adjustment, Louisiana shows an increase in value of products of \$31,906,624, or 184.5 per cent; Washington, of \$30,876,554, or 101.9 per cent; Mississippi, of \$14,328,224, or 93.7 per cent; Oregon, of \$6,752,068, or 65.8 per cent; Alabama, of \$7,635,039, or 61 per cent; California, of \$7,920,779, or 57.7 per cent; West Virginia, of \$5,718,648, or 56.1 per cent; Maine, of \$6,686,964, or 50.3 per cent; Arkansas, of \$10,793,986, or 44.3 per cent; and Tennessee, of \$5,977,686, or 35.8 per cent. There were 23 other states and territories which in 1905 showed increases in the value of their product over 1900, while 17 showed decreases. The largest decreases are shown for Ohio, \$6,628,376, or 33.5 per cent; Indiana, \$4,993,716, or 25 per cent; Michigan, \$9,668,309, or 17.9 per cent; and Pennsylvania, \$1,252,668, or 3.6 per cent; while Wisconsin shows a slight loss, \$386,385, or seven-tenths of 1 per cent.

Certain states which appear from Table 2 to have manufactured a lumber product of smaller value in 1905 than in 1900 in reality show an increase, as is indicated in Table 3, in which the values of products at the two censuses have been made exactly comparable. Thus Vermont shows an increase of \$2,013,624, or 33.9 per cent; Illinois, of \$904,265, or 12.6 per cent; Minnesota, of \$2,092,555, or 4.9 per cent; and Delaware, of \$4,217, or nine-tenths of 1 per cent.

In Table 4 are shown the investment in machinery, the value of products, the average number of wage-earners and the amount of wages paid per average establishment, for the United States and for the several states and territories, for 1900 and 1905.

TABLE 4.—Lumber and timber products—average per establishment of capital invested in machinery, value of products, number of wage-earners, and wages, by states and territories: 1905 and 1900.

STATE OR TERRITORY.	Census.	Investment in machinery.	Value of products.	Average number of wage-earners.	Wages.
United States.....	1905 1900	\$8,588 5,247	\$36,611 24,084	21 18	\$9,569 6,420
Alabama.....	1905 1900	10,625 5,114	34,165 15,732	25 18	8,580 4,370
Alaska.....	1905 1900	11,203 9,809	45,724 15,467	10 8	11,978 5,596
Arizona.....	1905 1900	90,127 18,716	221,825 39,128	104 26	78,953 18,391
Arkansas.....	1905 1900	11,406 6,468	41,258 26,620	26 26	11,223 7,799
California.....	1905 1900	30,802 27,027	70,255 49,702	43 39	28,064 18,651
Colorado.....	1905 1900	6,863 2,955	23,830 13,555	12 9	7,165 4,093
Connecticut.....	1905 1900	2,084 1,910	14,092 12,582	9 9	4,325 3,244
Delaware.....	1905 1900	1,712 1,766	6,182 6,857	4 5	1,365 2,007
Florida.....	1905 1900	27,110 9,694	65,099 29,522	53 27	18,927 8,306
Georgia.....	1905 1900	8,039 4,931	21,080 14,758	19 19	6,269 4,380
Idaho.....	1905 1900	11,341 2,876	40,112 9,771	14 8	8,559 3,116
Illinois.....	1905 1900	4,589 2,942	30,091 17,623	17 10	7,081 3,678
Indian Territory.....	1905 1900	2,245 1,453	14,527 4,734	8 6	3,610 1,413
Indiana.....	1905 1900	2,363 1,926	19,362 15,597	9 9	3,693 3,519
Iowa.....	1905 1900	15,864 5,775	170,574 71,926	39 25	19,324 9,268
Kansas.....	1905 1900	825 782	5,175 3,061	3 3	1,077 826
Kentucky.....	1905 1900	3,350 2,272	17,651 14,804	11 11	4,462 3,387
Louisiana.....	1905 1900	31,875 12,945	116,867 50,569	63 42	28,810 13,604
Maine.....	1905 1900	4,515 3,890	26,554 20,528	16 15	7,220 5,316
Maryland.....	1905 1900	3,576 2,777	14,355 10,143	10 11	4,237 2,657
Massachusetts.....	1905 1900	2,166 2,593	18,207 17,152	7 10	3,248 4,105
Michigan.....	1905 1900	10,561 7,065	57,764 40,146	36 29	17,047 11,971
Minnesota.....	1905 1900	21,216 20,537	201,723 148,229	78 71	38,969 32,964
Mississippi.....	1905 1900	16,252 7,521	47,921 26,819	34 26	14,208 7,542
Missouri.....	1905 1900	6,591 5,180	33,574 16,291	24 13	9,726 4,356
Montana.....	1905 1900	26,394 6,039	102,676 34,292	53 28	36,079 14,098
Nebraska.....	1905 1900	3,525 1,111	4,906 3,399	3 4	1,345 1,196
New Hampshire.....	1905 1900	4,581 5,122	20,882 22,729	12 19	5,226 6,682
New Jersey.....	1905 1900	2,321 2,358	10,181 13,820	8 8	3,403 3,207
New Mexico.....	1905 1900	31,072 2,231	66,185 14,889	49 23	23,304 6,749
New York.....	1905 1900	3,467 2,920	18,218 13,343	10 9	4,450 3,352
North Carolina.....	1905 1900	4,238 3,242	15,363 11,100	12 14	3,630 2,874

TABLE 4.—Lumber and timber products—average per establishment of capital invested in machinery, value of products, number of wage-earners, and wages, by states and territories: 1905 and 1900—Con.

STATE OR TERRITORY.	Census.	Investment in machinery.	Value of products.	Average number of wage-earners.	Wages.
North Dakota ¹	1900	\$1,485	\$6,050	8	\$1,580
Ohio.....	1905 1900	2,473 2,100	15,865 15,939	8 9	3,473 3,219
Oregon.....	1905 1900	10,993 7,205	42,312 27,573	18 15	11,487 7,162
Pennsylvania.....	1905 1900	5,450 4,441	27,871 20,952	14 14	6,568 5,471
Rhode Island.....	1905 1900	1,871 1,626	18,235 9,656	9 11	4,353 2,987
South Carolina.....	1905 1900	7,861 8,045	19,232 10,606	22 14	5,873 2,911
South Dakota.....	1905 1900	4,154 3,023	16,511 15,376	9 12	5,394 5,636
Tennessee.....	1905 1900	3,615 2,478	21,983 15,108	14 12	5,329 3,524
Texas.....	1905 1900	24,405 9,285	87,867 33,867	45 25	19,665 9,466
Utah.....	1905 1900	1,156 2,088	3,359 3,894	2 11	1,155 1,473
Vermont.....	1905 1900	3,677 3,050	19,029 11,953	10 11	4,329 3,279
Virginia.....	1905 1900	5,515 2,760	18,143 13,128	15 13	4,905 3,716
Washington.....	1905 1900	16,987 9,837	60,919 38,928	28 26	18,539 13,797
West Virginia.....	1905 1900	6,384 4,664	25,132 16,733	17 14	7,574 4,460
Wisconsin.....	1905 1900	12,710 11,818	99,819 73,268	49 43	24,058 17,606
Wyoming.....	1905 1900	1,860 9,383	15,947 23,533	11 22	5,190 9,645
All other states ²	1905 1900	54,625 1,128	76,541 2,365	24 2	15,796 459

¹ None reported in 1905.² Includes Nevada and Oklahoma.

As shown in the table, the amount of capital invested in machinery in the average plant in the United States increased between the two census periods from \$5,247 to \$8,588, a gain of \$3,341, or 63.7 per cent; while the average value of products increased \$12,527, or 52 per cent; the average number of wage-earners employed, 3, or 16.7 per cent; and the average amount of wages per establishment, \$3,149, or 49 per cent. A marked tendency is thus disclosed among merchant establishments to enlarge the capacity of their plants. The increases have not been uniform. The large increase in the amount of capital invested in machinery, accompanied by a relatively small gain in the average number of wage-earners, together with an increase in products exceeding that in wages, indicates that manual labor in the industry is being still further supplanted by mechanical devices.

At both censuses the highest average amount of capital invested in machinery and the largest average value of products per establishment were found as a rule in the new and active lumber regions. Notable among the states in which these conditions obtain are

Washington, Louisiana, Florida, Arkansas, Arizona, and Minnesota. These states show higher averages for the various items than the country as a whole.

The reverse conditions appear to prevail in the industry in the older lumber states and generally in sections where it is of only secondary importance, as is shown in the figures for New Hampshire, Connecticut, Delaware, North Carolina, South Carolina, and Georgia. While the maximum average annual earnings per employee generally appear in the states and regions where the industry is of later development and the plants are large, local influences to some extent affect this item. The average wages are higher in the Lake states than in the Northeastern and Southern states, but are exceeded in turn by those paid in the Pacific Coast states.

ELEMENTS OF THE LUMBER INDUSTRY.

In the preceding tables statistics have been given for the lumber industry as a whole, comprehending the successive stages of the conversion of standing timber into finished products. In Table 5 the principal statistics for the industry at the census of 1905 are shown for each of its three divisions—logging camps, sawmills, and planing mills. To the figures for planing mills connected with sawmills have been added the statistics for those owned or managed independently. In this connection it should be noted that the figures for independent planing mills have not been included with those shown in the preceding tables.

TABLE 5.—*Lumber and timber products—summary, by branches:*
1905.

	Total.	Logging or timber camps.	Sawmills.	Planing mills.
Number of establishments.....	40,257	12,494	18,277	9,486
Capital.....	\$694,369,862	\$90,454,494	\$381,621,184	\$222,294,184
Wage-earners, average number.....	502,300	146,596	223,674	132,030
Total wages.....	\$233,735,126	\$66,989,795	\$100,310,891	\$66,434,440
Cost of materials used.....	\$617,554,310	\$80,412,828	\$263,865,101	\$273,276,381
Value of products.....	\$1,132,305,992	\$236,131,048	\$491,524,662	\$404,650,282

Each branch of the industry is, in Tables 5 to 22, inclusive, treated as a distinct industry. In the value

of the products of logging camps is included the value of all saw logs and bolts turned out by dependent logging camps and used as material in the milling establishments connected with them; and in the products of sawmills is included the value of all rough lumber dressed or remanufactured in planing mills connected with the sawmills producing it. Likewise under the cost of materials in sawmills is included the value, delivered at the mill, of all saw logs and bolts used that were supplied to milling establishments by the logging camps operated by them, and similarly under cost of materials in planing mills is included the value of all rough lumber used that was manufactured in sawmills with which they were connected.

Thirteen per cent of the aggregate capital of the lumber industry was invested in logging camps, 55 per cent in sawmills, and 32 per cent in planing mills. Of the wages, 28.7 per cent was expended in logging operations, 42.9 per cent in sawmills, and 28.4 per cent in planing mills. Of the aggregate value of products, 20.9 per cent was contributed by logging camps, 43.4 per cent by sawmills, and 35.7 per cent by planing mills.

The average logging plant in the country reported capital to the amount of \$7,240, paid out \$5,362 in wages, and turned out a product valued at \$18,900. The average sawmill reported capital of \$20,880, wages to the amount of \$5,488, and products to the value of \$26,893. For planing mills the average capital was \$23,434; the average wages, \$7,003; and the average value of products, \$42,658.

LOGGING.

The raw material of the logging industry is standing timber, and its leading product is saw logs. Among the other principal products are shingle, stave, and heading bolts; cooperage and excelsior stock; fence posts; hop and hoop poles; handle stock; tan bark; piles; paving stock; railway ties; rived, or split, shingles; masts and spars; ship knees; telegraph and telephone poles; wheel stock; and charcoal.

In Table 6 are presented, by states and territories, statistics of the logging industry as reported at the census of 1905.

TABLE 6.—LOGGING OR TIMBER CAMPS—

	STATE OR TERRITORY.	Number of estab- lish- ments.	Capital.	SALARIED OFFICIALS, CLERKS, ETC.		WAGE-EARNERS AND WAGES.	
				Number.	Salaries.	Average number.	Wages.
1	United States.....	12,494	\$90,454,494	3,953	\$3,673,355	146,596	\$66,989,795
2	Alabama.....	518	3,151,639	137	123,160	5,220	1,786,113
3	Arizona.....	5	260,972	7	6,800	198	144,893
4	Arkansas.....	463	5,021,334	218	182,654	6,749	2,959,418
5	California.....	288	4,976,748	177	218,160	6,416	4,301,177
6	Colorado.....	72	235,915	18	14,755	284	185,285
7	Connecticut.....	89	127,859	8	7,500	635	285,813
8	Delaware.....	62	42,000			125	35,645
9	Florida.....	153	2,754,274	113	105,841	3,531	1,214,709
10	Georgia.....	756	3,233,059	121	94,015	6,254	2,034,381
11	Idaho.....	32	188,848	22	21,930	292	165,452
12	Illinois.....	152	523,478	25	19,271	936	435,926
13	Indian Territory.....	9	14,910	1	1,000	98	56,505
14	Indiana.....	190	299,755	19	18,598	734	317,330
15	Iowa.....	24	537,650	8	2,000	88	30,755
16	Kentucky.....	516	2,047,409	98	89,280	3,938	1,674,809
17	Louisiana.....	340	7,301,346	356	375,924	8,498	3,969,588
18	Maine.....	411	1,976,050	207	95,139	4,880	2,121,392
19	Maryland.....	99	338,434	6	5,480	835	421,726
20	Massachusetts.....	162	185,510	7	2,240	583	269,523
21	Michigan.....	458	6,202,748	112	124,567	10,472	4,839,872
22	Minnesota.....	126	4,804,540	274	252,084	7,487	3,435,809
23	Mississippi.....	527	5,666,550	242	232,422	8,185	3,491,697
24	Missouri.....	229	1,348,244	110	92,778	2,631	1,107,799
25	Montana.....	29	529,688	45	44,583	1,004	605,003
26	New Hampshire.....	224	993,563	41	36,100	2,122	908,743
27	New Jersey.....	82	80,835	1	500	384	162,920
28	New Mexico.....	21	369,279	15	16,625	406	219,053
29	New York.....	440	1,936,500	58	45,831	3,176	1,337,240
30	North Carolina.....	915	2,067,259	123	93,538	4,670	1,402,464
31	Ohio.....	361	1,253,704	39	34,883	1,272	563,319
32	Oregon.....	300	1,683,442	60	55,600	2,350	1,562,775
33	Pennsylvania.....	982	4,561,319	129	118,006	7,353	3,453,019
34	Rhode Island.....	19	20,050			109	51,284
35	South Carolina.....	333	1,191,450	78	56,557	3,944	1,003,582
36	South Dakota.....	18	40,638	2	1,360	88	52,916
37	Tennessee.....	577	2,417,822	78	75,602	4,486	1,829,335
38	Texas.....	267	3,565,990	172	187,759	4,234	1,921,274
39	Utah.....	14	7,915			20	9,638
40	Vermont.....	271	638,125	18	16,825	1,205	521,226
41	Virginia.....	654	1,601,995	93	72,910	4,743	1,489,659
42	Washington.....	571	8,971,176	250	321,211	10,229	7,095,437
43	West Virginia.....	423	2,978,228	162	123,834	4,852	2,253,992
44	Wisconsin.....	284	3,887,204	278	256,133	10,588	5,112,810
45	Wyoming.....	22	218,340	23	26,700	242	113,892
46	All other states and territories ¹	6	195,700	2	3,200	50	34,597

¹ Includes establishments distributed as follows: Alaska, 1; Nebraska, 2; Nevada, 2; Oklahoma, 1.

LUMBER AND TIMBER PRODUCTS.

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SUMMARY, BY STATES AND TERRITORIES: 1905.

MISCELLANEOUS EXPENSES.			MATERIALS USED.					PRODUCTS.				
Total.	Keep of animals.	Contract work.	Total cost.	Log stumpage.		Other stumpage (cost).	Supplies (cost).	Total value.	Saw logs.		Other products (value).	
				M feet B. M.	Cost.				M feet B. M.	Value.		
\$46,919,885	\$12,212,947	\$34,706,938	\$80,412,828	27,940,097	\$72,347,227	\$3,562,710	\$4,502,891	\$236,131,048	27,980,768	\$210,074,486	\$26,056,562	1
1,674,827	864,051	810,776	1,937,361	1,106,362	1,714,966	38,295	180,100	6,626,077	1,106,278	6,341,430	284,647	2
82,156	21,139	61,017	137,544	50,957	120,134	7,508	9,902	445,672	50,957	409,730	35,942	3
2,784,388	638,182	2,146,206	3,002,945	1,490,729	2,601,303	96,883	244,559	10,715,287	1,494,571	9,733,318	981,969	4
1,057,140	323,815	733,325	1,877,015	1,098,550	1,523,339	96,462	257,214	8,944,190	1,096,950	7,947,204	996,986	5
145,567	83,764	61,803	153,602	96,713	137,969	2,860	12,773	599,051	96,713	587,326	11,725	6
154,428	44,246	110,182	391,812	57,569	239,178	148,534	4,100	1,007,464	57,634	537,065	470,399	7
44,845	14,615	30,230	92,415	25,581	85,512	5,024	1,275	195,606	25,581	173,931	21,075	8
891,876	364,791	527,085	1,408,125	674,264	1,230,710	28,875	208,540	4,416,561	678,396	4,245,256	171,305	9
1,396,483	1,060,070	336,413	2,255,954	1,145,344	1,922,365	163,070	170,519	6,937,000	1,142,812	5,915,589	1,021,411	10
373,722	21,940	351,782	104,123	90,755	126,193	30,250	7,680	870,272	92,205	681,926	188,346	11
197,065	34,871	162,194	336,342	99,625	283,196	48,243	4,903	1,280,879	99,599	858,151	422,728	12
61,023	2,823	48,200	30,170	2,796	8,198	21,005	967	196,438	3,046	33,533	132,905	13
301,344	59,355	244,989	1,097,230	137,451	1,051,813	35,262	10,155	2,085,002	133,482	1,934,949	150,053	14
497,681	22,615	475,066	455,009	87,244	445,906	1,503	7,600	1,232,382	87,242	1,215,716	16,666	15
1,080,891	213,370	867,521	1,562,200	355,365	1,326,968	168,093	67,139	5,288,616	353,636	3,683,873	1,604,743	16
3,081,111	687,350	2,393,761	5,276,056	2,088,971	4,727,272	110,463	438,321	15,245,375	2,094,250	14,060,970	1,184,405	17
1,587,541	332,530	1,255,011	2,425,643	621,943	2,300,852	74,255	50,536	6,442,547	621,046	6,000,323	442,224	18
164,880	53,401	111,479	465,245	101,612	423,593	34,417	7,235	1,268,947	101,692	1,096,81	172,016	19
199,680	72,671	127,009	476,915	103,392	433,628	37,738	8,549	1,138,030	104,035	930,154	207,876	20
2,725,543	773,778	1,951,765	6,467,277	1,488,661	5,636,684	524,113	306,480	17,034,456	1,494,396	13,713,934	3,320,522	21
4,199,209	478,998	3,720,211	6,862,475	1,392,660	6,478,318	183,015	201,142	16,962,014	1,395,759	15,092,194	1,869,820	22
1,986,813	864,207	1,122,606	3,331,534	1,492,789	2,983,786	97,008	250,740	10,850,959	1,492,831	9,584,831	1,266,128	23
1,307,830	344,843	962,987	940,473	538,110	767,939	77,159	95,375	4,138,656	536,036	3,757,559	381,097	24
274,973	76,903	198,070	328,174	218,094	289,122	12,340	26,712	1,503,280	218,581	1,359,820	143,460	25
985,244	180,021	805,223	1,731,729	359,971	1,541,372	162,928	27,429	3,850,694	365,190	3,210,122	640,572	26
89,528	33,478	56,050	209,731	33,579	179,423	28,643	1,665	555,215	33,619	398,982	156,233	27
88,102	29,657	58,445	199,900	76,944	172,168	2,297	25,435	625,416	76,944	613,599	14,817	28
822,119	266,713	555,406	1,884,639	394,355	1,792,247	71,007	21,385	4,896,059	393,541	4,456,572	439,487	29
1,696,987	484,735	1,212,252	2,120,765	1,056,777	2,027,335	8,455	84,975	6,376,505	1,060,040	6,253,766	122,739	30
729,055	139,206	589,849	1,821,380	260,522	1,764,545	41,867	14,968	3,778,364	263,330	3,620,396	157,968	31
411,254	131,500	279,754	702,594	658,857	629,802	10,773	62,019	3,806,344	658,867	3,099,327	167,617	32
4,363,322	496,900	3,866,422	7,260,612	1,544,519	6,735,841	395,028	129,743	16,576,494	1,548,972	13,693,242	2,883,252	33
72,006	12,646	59,360	95,230	12,848	52,960	42,020	250	262,224	12,848	88,159	174,065	34
381,695	297,407	84,288	852,954	469,831	777,346	13,159	62,449	2,753,746	472,055	2,647,012	106,734	35
52,128	21,818	30,310	31,636	13,686	27,011	3,435	1,190	165,648	13,686	111,858	53,790	36
1,412,626	291,137	1,121,489	2,145,978	510,980	1,780,730	329,723	35,525	6,556,249	511,891	4,726,120	1,830,129	37
1,614,734	525,263	1,089,471	2,599,669	1,260,419	2,241,919	127,303	230,387	7,588,051	1,262,805	6,490,654	1,097,997	38
2,630	2,530	100	4,040	2,914	3,770	.....	270	19,570	2,914	19,570	.....	39
478,801	168,469	310,332	813,027	201,756	793,347	4,785	14,895	2,073,585	200,908	2,008,888	64,697	40
925,885	439,956	485,929	1,936,517	840,774	1,810,158	50,801	75,558	5,309,965	841,279	5,024,256	285,709	41
2,387,613	341,188	2,046,425	4,103,675	3,127,729	3,333,627	17,973	752,075	18,405,860	3,127,689	18,004,611	401,249	42
1,680,554	297,802	1,382,752	2,488,462	732,515	2,289,175	67,791	131,496	8,056,210	734,624	7,245,887	810,323	43
2,351,273	589,675	1,761,598	7,814,076	1,796,555	7,445,044	116,469	252,563	18,641,150	1,802,809	17,757,259	883,891	44
100,254	3,988	96,266	31,337	5,990	6,840	22,509	1,988	344,663	5,990	35,940	308,723	45
10,059	4,530	5,529	29,298	13,039	19,623	2,765	6,910	92,025	13,039	73,303	18,722	46

The figures shown in Table 6 are for both dependent logging camps—those operated by milling establishments—and those conducted independently. As previously noted, the canvass at the census of 1905 was confined to merchant mills and to logging operations or timber camps of corresponding magnitude. Thus numerous small operators—farmers, as a rule—engaged in getting out, during a few months of the year, such products as railway ties, telegraph and telephone poles, and fence posts, were not included. The scope of the census was still further restricted by excluding establishments engaged solely or chiefly in cutting cord wood.

Under "capital" are included all items of investment in both plant and live capital in the entire logging industry, with the exception of investments in timber lands and standing timber (see Table 1, page 64). Important among the items under this heading aside from live capital, are logging railways and equipment, stationary and traction engines, pull boats, wire cables, and other equipment used in steam logging; flumes; animals, wagons, and carts; and axes, saws, chains, booms, etc. Under "wage-earners" are included all employees of the logging industry other than salaried officials, clerks, etc., and under "wages" is given the total compensation paid such employees during the census year. Where either board or quarters, or both, are furnished as part pay, their value to the wage-earner is included under wages.

Under "materials" are shown the cost on the stump of all timber cut in logging camps and the cost of supplies consumed in these camps during the year, exclusive of those for board of men and for keep of horses and cattle. The heading "log stumpage" covers the quantity in thousand feet, board measure, and the value in the tree of all timber cut for use as material in sawmills, and under "other stumpage" is given the value of all other stumpage, from which such products as telegraph and telephone poles, fence posts, hewed railway ties, etc., were manufactured. The showing of products is similar to that of materials, the quantity and value of saw logs being presented separately and the combined value of all other timber products given in one item.

Of the 12,494 logging camps in operation during the census year, 11,644, or 93.2 per cent, were conducted by milling establishments; and 850, or 6.8 per cent, were operated independently. The dependent logging camps reported \$70,686,873, or 78 per cent, of the total amount of capital invested in the industry; employed 117,280, or 80 per cent, of the wage-earners; paid out \$52,041,305, or 78 per cent, of the wages; and of the total cost of materials and the value of products they contributed \$72,372,388 and \$201,970,272, or 90 per cent and 86 per cent, respectively.

While it thus appears that the bulk of the logging industry is carried on in conjunction with sawmills—that is, in dependent camps—the independent logging camps on an average are much the larger. The distri-

bution of the latter follows closely the centers of heaviest lumber production. They are most numerous in Washington, where 195, or 22.9 per cent of the total number, were in 1905 reported in operation. These 195 establishments reported capital to the amount of \$6,429,480, or 32.5 per cent of the total invested in independent logging camps in the country, and turned out a product valued at \$9,793,155, or 28.7 per cent of the total for plants of this character. Other states in which logging was conducted as a distinct industry and on a large scale were the following: Minnesota, where there were 32 establishments in operation during the census year, with capital of \$2,489,270 and products valued at \$4,406,695; Michigan, with 73 establishments, \$1,808,750 of capital, and products valued at \$2,147,361; Tennessee, with 23 establishments, \$1,549,961 of capital, and products valued at \$1,847,527; Kentucky, where there were 29 establishments, with capital of \$1,085,765, and products valued at \$1,572,030; Louisiana, with 34 establishments, \$664,525 of capital, and value of products of \$1,573,254; and Oregon, where there were 54 establishments reporting capital to the amount of \$707,631 and products valued at \$1,179,608.

The average logging camp in the country at the census of 1905, as indicated in Table 6, reported capital to the amount of \$7,240; employed 12 wage-earners; paid out \$5,362 in wages, including board and quarters when furnished as part pay; expended \$6,436 for standing timber and supplies; and turned out products valued at \$18,900, which comprised 2,240 thousand feet, board measure, of saw logs, with a value of \$16,814, and other timber products, to the value of \$2,086. Taking the value of products as a measure of its magnitude, the average logging camp in the United States was exceeded by that of Arizona, with an average value of \$89,134; Arkansas, with \$23,143; California, with \$31,056; Florida, with \$28,866; Idaho, with \$27,196; Iowa, with \$51,349; Louisiana, with \$44,839; Michigan, with \$37,193; Minnesota, where the average was far in excess of that of the country, amounting to \$134,619; Mississippi, with \$20,590; Montana, with \$51,837; New Mexico, with \$29,924; Texas, with \$28,420; Washington, with \$32,234; West Virginia, with \$19,045; and Wisconsin, with \$65,638. In the remaining states, which in the main are of secondary importance in the lumber industry, logging operations were conducted on a smaller scale. In certain of these, however, notably Maine, Tennessee, Kentucky, and Pennsylvania, the aggregate of such operations was large, but much of it, owing to the varied character of the timber handled and other local conditions, was distributed among numerous small plants.

The rank of the leading states in the manufacture of timber products with respect to number of establishments, capital, average number of wage-earners, wages, and value of products at the censuses of 1900 and 1905 is presented in Table 7.

TABLE 7.—LOGGING OR TIMBER CAMPS—RANK OF LEADING STATES IN VALUE OF PRODUCTS, QUANTITY OF SAW LOGS, CAPITAL, NUMBER OF ESTABLISHMENTS, NUMBER OF WAGE-EARNERS, AND WAGES: 1905 AND 1900.

STATE.	VALUE OF PRODUCTS.		SAW LOGS (M FEET B. M.).		CAPITAL.		NUMBER OF ESTABLISHMENTS.		WAGE-EARNERS AND WAGES.			
									Average number.		Wages.	
	1905	1900	1905	1900	1905	1900	1905	1900	1905	1900	1905	1900
Wisconsin.....	1	2	3	1	9	1	20	16	1	2	2	4
Washington.....	2	5	1	3	1	6	6	12	3	4	1	2
Michigan.....	3	1	6	2	3	2	11	6	2	1	3	1
Minnesota.....	4	3	8	4	7	3	29	28	6	3	8	3
Pennsylvania.....	5	4	4	5	8	4	1	1	7	5	7	5
Louisiana.....	6	8	2	8	2	11	16	23	4	11	5	10
Mississippi.....	7	13	7	11	4	10	7	15	5	9	6	9
Arkansas.....	8	6	5	6	5	8	10	4	8	6	9	7
California.....	9	10	12	12	6	5	19	27	9	10	4	7
West Virginia.....	10	20	15	17	13	18	13	18	13	15	10	17
Texas.....	11	14	9	10	10	7	22	17	17	14	13	8
Georgia.....	12	9	10	7	11	15	3	3	10	7	12	11
Alabama.....	13	19	11	13	12	13	8	8	11	12	15	18
Tennessee.....	14	23	20	23	15	25	5	8	16	24	14	25
Maine.....	15	22	18	24	18	17	14	21	12	21	11	23
North Carolina.....	16	16	13	9	16	14	2	2	15	8	19	12
Virginia.....	17	7	14	14	21	20	4	7	14	13	18	13
Kentucky.....	18	24	24	25	17	21	9	13	19	25	16	24
New York.....	19	12	22	18	19	9	12	10	21	17	20	14
Florida.....	20	18	16	15	14	12	27	25	20	18	21	20
Missouri.....	21	21	19	20	22	19	23	14	22	19	22	19
New Hampshire.....	22	17	23	16	25	16	24	24	24	16	24	15
Oregon.....	23	25	17	19	20	24	18	22	23	26	17	21
Ohio.....	24	11	25	22	23	22	15	5	25	23	26	22
South Carolina.....	25	27	21	25	24	27	17	19	18	22	23	26
Indiana.....	26	15	28	21	32	28	25	11	30	20	30	16
Vermont.....	27	30	27	28	26	26	21	20	26	27	27	28

Table 7 clearly indicates wide differences in size, as measured by value of products, of the average logging camp in the various states and regions at both censuses. The average camp was largest in Minnesota and, among the other leading lumber states, was large also in Wisconsin, Washington, California, Louisiana, and Texas, and relatively small in Pennsylvania, North Carolina, Virginia, and Georgia. It is noteworthy that in general those states and regions which were most active in lumber production ranked highest both in aggregate value of logging products and in average capacity of camp.

The table brings out the fact that growth in the industry since 1900 has been most rapid in the southwestern and certain of the Pacific Coast states, while a substantial and, with respect to most of the items, uniform decline characterizes the showing of the Lake states as a group. That logging is relatively declining in the Central states is indicated clearly. Ohio, which stood fifth in number of establishments and eleventh in value of products in 1900, dropped at the census of 1905 to fifteenth in number of establishments and twenty-fourth in value of products, while Indiana receded from eleventh place to twenty-fifth in number of establishments and from fifteenth to twenty-sixth in value of products. This marked falling off in the logging industry in the Central states is due of course to the practical exhaustion of merchantable timber in continuous bodies. The present supply, which consists in the main of scattered remnants, can be converted into lumber more economically by the use

of portable mills, which means the practical elimination of logging as an important factor in the manufacturing process. Moreover, much of the material which supplies the still comparatively important sawmill and planing mill industries of these states comes from the forests of Kentucky, West Virginia, and other neighboring states.

Pennsylvania shows little change in its relative standing in the industry. That in value of timber products it has dropped from fourth to fifth place, while in quantity it has advanced from fifth to fourth, indicates that the better grades of timber in the state are being exhausted and lower grades cut in increasing quantity.

While exceptional activity in nearly all the Southern states west of Georgia is indicated, that state, with Florida, North Carolina, and Virginia, loses rank under most of the headings, while South Carolina on the whole shows a normal gain. Tennessee and Kentucky have made substantial advances. Among the Eastern states, New York and New Hampshire have declined in rank, while Maine shows a fair gain.

Of the several items covered by the table, perhaps the quantity of saw logs produced by the various states affords the most accurate measure of the magnitude of their logging operations. The rules followed in scaling saw logs do not differ materially throughout the country, while the value of a given quantity of saw logs in one state or section may differ quite widely from the value of a like quantity in another state or section. The relative rank of many

states in capital, wage-earners, and wages is also appreciably affected by local conditions and the methods of logging employed. Furthermore, saw logs constituted in 1905, in point of value, nearly nine-tenths of the total logging product. Among the states showing the most rapid growth in the industry since 1900, as gauged by the quantity of saw logs produced, are Louisiana, which advanced from eighth to second place; Mississippi, from eleventh to seventh; Alabama, from thirteenth to eleventh; Texas, from tenth to ninth; and Washington, from third rank to first. The decline of the industry in the Lake states is shown clearly by the marked shrinkage in the volume of logging camp products. Wisconsin, which in 1900 ranked first in the quantity of sawmill material produced, stood third in 1905; while Michigan and Minnesota, which ranked second and fourth in 1900, dropped to sixth and eighth places, respectively, at the census of 1905.

Changes in the rank of certain states under "capital" are significant. Most pronounced gains were made by Washington, Louisiana, and Mississippi, which advanced from sixth place to first, from eleventh to second, and from tenth to fourth, respectively; while relatively heavy losses in rank are recorded for Wisconsin, Michigan, Minnesota, New Hampshire, and New York. Wisconsin dropped from first place to ninth, Michigan from second to third, Minnesota from third to seventh, New Hampshire from sixteenth to twenty-fifth, and New York from ninth to nineteenth.

In the first group of states the lumber industry is growing rapidly in all branches, which involves, of course, additional investment in logging equipment. This equipment being new, the amount of capital reported as invested in it was little, if any, short of its actual cost. In the second group, conditions in the industry are in many respects reversed, so that the amount of new capital being put into logging plants is relatively small. As the time approaches when much of the old logging equipment will have a value little above that of junk, the tendency is to report as the amount of capital invested in the plant its present market value, which in many instances is far below the original cost. Furthermore, the problem of economic mill management, the reduction to the minimum of the cost of lumber manufacture from the delivery of the logs in the pond to the loading of the finished product

on the car, has for many years received exhaustive study, and has been solved to such a degree that in a modern plant the mill expense involved in producing a given quantity of lumber is a known and practically a constant quantity. Increase in the outlay for stumpage is steady and certain, though this item can not exceed the difference between the market value of lumber and its cost of manufacture. The cost of logging is the variable item. The available supply of merchantable timber in the country is fast passing into the hands of the lumber manufacturers. With holdings which insure a supply of material for a mill for many years, perhaps indefinitely, if scientific and conservative methods of lumbering are employed, and with the amount of profit from the enterprise hinging largely upon the economy practiced in logging operations, that branch of the industry now receives far more thought than formerly. Labor saving mechanical devices are at many points supplanting primitive implements and methods, so that the equipment of a modern logging plant is characterized by a degree of permanency that was wholly lacking when stumpage values were low and the supply of timber seemed practically unlimited. As a result of these changed conditions, it is natural that those states in which the logging industry is rapidly growing should show a greater proportionate increase in capital than in products, number of establishments, wage-earners, and wages.

Among the states not included in Table 7 whose scope is limited to those which led in 1905 in the production of timber products, as determined by the aggregate value of their output, are some in which the industry is growing with great rapidity, and in which logging operations, as disclosed by the census of 1905, are being conducted on a large scale, the average output of their camps being far in excess of that of the country.

Prominent among the latter class are Idaho, where the average logging camp in 1905, as measured by the quantity of saw logs and value of all products, was nearly four times as large as that of 1900, and Arizona and New Mexico, where it more than doubled in size between the two censuses.

In Table 8 are shown the average values per thousand feet, board measure, of log stumpage and saw logs of all species, by states and territories, at the censuses of 1900 and 1905.

TABLE 8.—*Logging or timber camps—stumpage and log value, by states and territories: 1905 and 1900.*

STATE OR TERRITORY.	LOG STUMPAGE (VALUE PER M FEET B. M.).		SAW LOGS (VALUE PER M FEET B. M.).	
	1905	1900	1905	1900
United States.....	\$2.59	\$2.18	\$7.51	\$6.28
Alabama.....	1.55	1.20	5.73	4.30
Alaska.....	0.50	0.97	3.55	5.08
Arizona.....	2.36	1.03	8.04	7.50
Arkansas.....	1.79	1.09	6.51	4.74
California.....	1.39	1.16	7.24	4.63
Colorado.....	1.43	1.12	6.07	4.99
Connecticut.....	4.15	2.90	9.32	7.88
Delaware.....	3.34	3.53	6.80	5.55
Florida.....	1.83	1.22	6.26	6.23
Georgia.....	1.68	1.01	5.18	4.41
Idaho.....	1.39	1.09	7.40	3.95
Illinois.....	2.84	2.64	8.02	8.36
Indian Territory.....	2.93	1.21	11.01	4.61
Indiana.....	7.65	5.39	14.50	9.39
Iowa.....	5.11	4.95	13.93	12.16
Kansas.....	(¹)	2.17	5.41	7.84
Kentucky.....	3.73	2.67	10.42	6.86
Louisiana.....	2.26	1.22	6.71	5.59
Maine.....	3.70	2.52	9.66	8.15
Maryland.....	4.17	2.92	10.79	6.75
Massachusetts.....	4.19	2.64	8.94	9.49
Michigan.....	3.79	3.06	9.18	7.60
Minnesota.....	4.65	3.40	10.81	8.09
Mississippi.....	2.00	1.30	6.42	4.60
Missouri.....	1.43	1.89	7.01	6.91
Montana.....	1.33	1.18	6.22	4.11
Nebraska.....	3.00	2.29	7.12	5.69
Nevada.....	1.49	1.04	5.71	4.02
New Hampshire.....	4.28	2.68	8.79	6.96
New Jersey.....	5.34	3.93	11.87	7.56
New Mexico.....	2.24	1.14	7.97	4.82
New York.....	4.54	3.12	11.32	7.75
North Carolina.....	1.92	1.34	5.90	4.45
North Dakota.....	(¹)	1.00	(¹)	5.00
Ohio.....	6.77	4.92	13.75	9.47
Oklahoma.....	(¹)	2.54	² 45.57	5.82
Oregon.....	0.96	0.66	5.61	4.46
Pennsylvania.....	4.36	2.94	8.84	6.71
Rhode Island.....	4.12	3.02	6.86	7.15
South Carolina.....	1.65	1.23	5.61	4.16
South Dakota.....	1.97	1.80	8.17	5.25
Tennessee.....	3.48	2.18	9.23	6.56
Texas.....	1.78	1.17	5.14	4.47
Utah.....	1.29	1.32	6.72	5.31
Vermont.....	3.93	2.09	10.00	5.80
Virginia.....	2.15	1.79	5.97	8.35
Washington.....	1.07	0.80	5.76	5.14
West Virginia.....	3.13	2.36	9.86	6.59
Wisconsin.....	4.14	3.51	9.85	7.20
Wyoming.....	1.50	1.27	6.00	5.69

¹ None reported.² Black walnut.

The increase in the value of log stumpage was general and in certain states large. The fact that the rise in stumpage values was confined to no particular section or group of states and extended to all species of merchantable timber is significant. It is due not so much to a present shortage in the supply of lumber material in the country as a whole as to the fact that the available supply of log stumpage is rapidly being bought up and withdrawn from the market. This movement is prompted largely by the belief that the time is fast approaching when the available supply will prove inadequate to the demand. The average for the United States increased from \$2.18 per thousand feet, board measure, in 1900 to \$2.59 in 1905, a rise of 41 cents, or 18.8 per cent. This advance in the cost of stumpage added \$11,472,115 to the total cost of sawmill material, and increased the value of lumber proportionately.

The showing for certain states is noteworthy. In Maine, New Hampshire, and New York the advance

in the price of standing timber has been at a rate well above that for the country. In Maine spruce was the leading species of lumber manufactured during the year covered by the census of 1905, constituting 52 per cent of the total cut; while in New Hampshire and New York it formed 22.3 and 27.1 per cent, respectively. The further demand for this species of timber as a raw material in the wood pulp industry is heavy and increasing in these states. They contributed 63.2 per cent of the total quantity of domestic spruce manufactured into wood pulp in 1900 and 69.7 per cent at the census of 1905. The inroad being made by the lumber and pulp industries into the remaining supply is consequently rapid. This condition, together with the fact that much of the stand has been concentrated into extensive holdings by the pulp manufacturers, largely explains the substantial rise in the cost of lumber stumpage.

In the Lake states the advances have not been uniform, and the explanation lies mainly in the fact that white pine, the species of highest stumpage value, was cut to a far less extent in certain of these states than formerly. In Michigan the average value for all species rose during the five years from \$3.06 to \$3.79 per thousand feet, an increase of 73 cents; in Wisconsin, from \$3.51 to \$4.14, an advance of 63 cents; in Minnesota, from \$3.40 to \$4.65, a rise of \$1.25. In Michigan and Wisconsin the cut is running more and more to hemlock and the hard woods, species of lower stumpage value, while in Minnesota white pine is still the principal species manufactured into lumber, constituting 98 per cent of the total cut of the state at the census of 1905.

Among the Central states the appreciation in certain instances is noteworthy. In Illinois, Indiana, and Ohio, where very little merchantable timber remains, the rise in stumpage values is due directly to the growing scarcity of sawmill material for immediate use. In Kentucky and Tennessee, however, where the supply is still relatively large, the sharp advances are due in large part to extensive buying for future use.

In the southern yellow pine region the advance in stumpage values has been most marked in those states which have been most active in lumber manufacture and in which stands the bulk of the supply of yellow pine stumpage. In Louisiana the advance during the five years was from \$1.22 to \$2.26 per thousand feet, an increase of \$1.04, or 85.2 per cent; in Mississippi, from \$1.30 to \$2, a rise of 70 cents, or 53.8 per cent; in Texas, from \$1.17 to \$1.78, an increase of 61 cents, or 52.1 per cent. The increase in Texas practically measures the advance in the cost of yellow pine stumpage, since this species constituted 98.3 per cent of its total lumber cut in the year covered by the report. In Louisiana 78.5 per cent and in Mississippi 78.6 per cent of the total cut was yellow pine.

On the Pacific slope is still to be found the cheapest high grade stumpage in the country, though the values in this region show substantial increases over 1900.

The difference between the cost of stumpage and the value of the saw log product consists of two elements, namely, the cost of logging operations and profit. The average cost of log stumpage for the United States in 1905 was 41 cents per thousand feet more than in 1900, while the average value of saw logs in 1905 exceeded that of 1900 by \$1.23 per thousand feet. The logical inference from this showing is that either the cost of logging operations has increased since 1900 or that the margin of profit was wider in 1905. There was probably an increase in both. As a rule that timber is first utilized for saw logs which is most accessible and can be taken from the stump and delivered to the mill with least expense. As a result of this practice, the average distance from the stump to the mill is constantly increasing, and this, together with the fact that the supply of stumpage in the country is becoming more scattered, tends to multiply the operations involved in logging and to increase the total cost. The showing is also affected to some extent by the steady rise in wages. It is not improbable, therefore, that there has been a slight increase in the cost of logging operations between the two censuses despite the fact that improved logging equipment was more extensively used than formerly. Furthermore, in 1905 the statistics relating to the logging branch of the lumber industry were secured in greater detail and are therefore more complete than was the case in 1900, and it is not improbable that certain items of expense were included at the latter census which were not covered at the former.

In Table 9 are presented the average stumpage values per thousand feet of the principal species of timber cut into saw logs, as reported at the censuses of 1900 and 1905.

TABLE 9.—*Logging or timber camps—stumpage, average value per thousand feet of the principal species of timber, for the United States: 1905 and 1900.*

SPECIES.	AVERAGE VALUE PER M FEET B. M.	
	1905	1900
All species.....	\$2.59	\$2.18
Yellow pine.....	1.68	1.12
White pine.....	4.62	3.66
Douglas fir.....	1.05	0.77
Hemlock.....	3.51	2.56
Oak.....	3.83	3.18
Spruce.....	3.70	2.26
Cypress.....	3.42	1.58
Redwood.....	1.55	1.06
Cedar.....	1.49	1.32
Gum.....	1.67	1.08
Poplar.....	3.89	2.81
Maple.....	3.82	2.66
Cottonwood.....	2.61	1.45
Elm.....	5.58	3.30
Chestnut.....	3.39	2.71
Basswood.....	3.89	1.50
Ash.....	3.95	3.03

Yellow pine, which was the species most extensively used as lumber material at both censuses, showed a substantial rise in stumpage value, the increase for the census period being 56 cents per thousand feet, or exactly 50 per cent. As reported in 1905 this species was converted into lumber in merchantable quantities in 25 states and territories, and as to quantity was the leading species used in 22. Under the name "yellow pine" are comprised all such species as the long-leaf, short-leaf, loblolly, and Cuban pines of the Southern states and the yellow pines of the West. The range in stumpage value among the different states was wide at both censuses. In 1905 it was lowest in Oregon, where the average was 87 cents per thousand feet, and highest in New Mexico, where it was \$2.51. The most marked increases from 1900 to 1905 in the stumpage value of yellow pine were shown in Arizona, where the advance was from \$1.03 to \$2.36; New Mexico, from \$1.16 to \$2.51; Louisiana, from \$1.01 to \$1.86; Arkansas, from 86 cents to \$1.49; Washington, from 85 cents to \$1.39; and Texas, from \$1.12 to \$1.78.

The increase in stumpage value of white pine, which includes Norway pine, was for the country 96 cents per thousand feet, or 26.2 per cent. The advance was greatest in Maine, where the stumpage value of this species increased from \$2.51 per thousand feet in 1900 to \$4.42 for 1905. New York, where the stumpage value of white pine was the highest in the country in 1900, namely, \$4.33, reported an average for 1905 of \$4.73. In Michigan, where white pine is rapidly disappearing as a lumber timber, the increase was from \$3.82 per thousand feet in 1900 to \$5.28 for 1905, the highest stumpage value shown by any of the states for this species at the latter census. In Minnesota and Wisconsin, the leading producers of white pine lumber at both censuses, the advances in stumpage values were from \$3.61 and \$3.85 in 1900 to \$4.67 and \$4.79, respectively, at the census of 1905.

Douglas fir was in 1905, as in 1900, the principal species converted into lumber in the states of Washington and Oregon. In Washington, where it was cut in greatest quantity, the stumpage value increased from 80 cents in 1900 to \$1.07 at the census of 1905. In Oregon the advance was from 59 cents to 93 cents.

The increase in value of hemlock stumpage was for the United States 95 cents per thousand feet, or 37.1 per cent. The growing scarcity of white pine and spruce created a demand for hemlock, which resulted in a substantially larger quantity of this species being cut in 1905 than in 1900 and accounts in part for the sharp advance in the value of hemlock stumpage. In Pennsylvania, where this species constituted 67.1 per cent of the total cut of lumber reported in 1905, its stumpage value rose from \$2.75 to \$4.36 per thousand feet between the two censuses. In Michigan it contributed 39.1 per cent of the total cut reported in 1905, and its stumpage value advanced from \$2.25 to \$3.02. In Wisconsin 26.4 per cent of the total cut reported in

1905 was from hemlock stumpage, which increased in value during the five years from \$2.16 to \$2.95 per thousand feet. In Maine hemlock stumpage advanced from \$2.52 in 1900 to \$3.13 at the census of 1905; in New Hampshire, from \$3.19 to \$4.15; in New York, from \$2.98 to \$4.79; and in Vermont, from \$2.01 to \$3.44.

The rise in the value of oak stumpage in the country was 65 cents per thousand feet, about the same percentage of increase as that shown in the average of all species. The stumpage value of oak varied greatly among the different states in 1905, being lowest in Missouri, where the average was \$1.88, and highest in Indiana, where it was \$7.94 per thousand feet. In certain states the advance over 1900 was notably large. In Michigan it rose from \$3.58 to \$7.12; in Ohio, from \$4.70 to \$6.40; and in Indiana, from \$5.38 to \$7.94 per thousand feet.

The per cent of increase in the value of spruce stumpage was far above that in the average value of all species, the net advance being \$1.44 per thousand feet, or 63.7 per cent. In Maine the rise was from \$2.70 in 1900 to \$3.63 in 1905; in New Hampshire, from \$2.71 to \$4.50; in New York, from \$2.81 to \$4.62; in Vermont, from \$2.04 to \$4.04. Western spruce is still cheap, the increases

over 1900 being immaterial except in Oregon, where it rose from 67 cents to \$1.43. In California the stumpage value of this species was \$1.28, and in Washington 94 cents per thousand feet, in 1905.

The advance in the stumpage value of cypress between the two censuses was remarkable, the increase per thousand feet being \$1.84, or 116.5 per cent. The range in stumpage value of this species in 1905 was from \$1.53 per thousand feet in North Carolina to \$5.06 in Georgia. The states showing the largest increases are Florida, where it rose from \$1.55 in 1900 to \$3.29 in 1905, and Louisiana, where the advance was from \$1.51 to \$3.76.

A substantial increase was made in the stumpage value of redwood, found only in California, the advance per thousand feet being 49 cents, or 46.2 per cent.

The remaining species, chiefly hard woods, were in the main cut in relatively small quantities, and, with the exceptions of cottonwood, basswood, maple, and elm, the advances in stumpage values have not been large.

In Table 10 are presented the quantity and value of the leading products of the logging industry as returned at the censuses of 1900 and 1905.

TABLE 10.—LOGGING OR TIMBER CAMPS—QUANTITY AND VALUE OF PRINCIPAL PRODUCTS: 1905 AND 1900.

CENSUS.	SAW LOGS.		RAILWAY TIES.		TELEGRAPH AND TELEPHONE POLES.		FENCE POSTS.		HEMLOCK BARK.		OAK BARK.		CHARCOAL.	
	Meet P. M.	Value.	Number.	Value.	Number.	Value.	Number.	Value.	Cords.	Value.	Cords.	Value.	Bushels.	Value.
1905.....	27,900,768	\$210,074,486	36,445,308	\$12,413,793	2,080,482	\$2,383,275	17,433,268	\$1,253,167	391,631	\$2,347,463	69,873	\$470,722	1,587,443	\$112,401
1900.....	25,279,702	158,880,352	22,524,640	6,277,439	936,713	1,392,284	8,625,292	598,520	471,802	1,940,057	39,044	224,912	6,523,364	441,322

An upward movement in the value of forest products is clearly indicated by the showing. Saw logs, the principal product of the industry, increased between the two censuses in quantity 2,701,066 thousand feet, board measure, or 10.7 per cent, and in value \$51,194,134, or 32.2 per cent. The increase in the average value per thousand feet of saw logs of all species was from \$6.28 in 1900 to \$7.51 in 1905.

In the number of railway ties reported the increase was 13,920,668, or 61.8 per cent, and in value it was \$6,136,354, or 97.8 per cent. The figures relate only to hewn ties. The average value of a tie rose from 28 cents in 1900 to 34 cents as reported in 1905. The data are of interest chiefly because they disclose the rapid increase in the value of this important article of railway construction and maintenance. The number of railway ties shown in the table is less for both censuses than the total production of the country at the two periods. A large percentage of this product is gotten out by small operators, chiefly farmers, who engage in this work during certain seasons of the year only and sell directly to the railroad companies. As previously explained, petty operations of this character were not regarded as falling within the scope of the canvass at

the census of 1905, which was restricted to merchant sawmills and to timber camps of similar magnitude. Furthermore, an important and increasing percentage of the total production of railway ties in the country was sawed and reported by the mills in thousand feet, board measure, under the general heading of rough lumber.

The increase in the number of telegraph and telephone poles over 1900 was 1,143,769, or 122.1 per cent, while the increase in value was \$990,991, or 71.2 per cent. The average value per unit of this product decreased between the two censuses from \$1.49 in 1900 to \$1.15 at the census of 1905. This was doubtless due to the fact that for telephone lines in the smaller towns and villages and between such points a much larger proportion of the total production of telegraph and telephone poles than formerly is required, the poles used in such systems being on the average much smaller and consequently of lower value than those required for telegraph lines and for telephone systems in large cities.

The same explanation should be made with reference to the quantities of telegraph and telephone poles, and of fence posts, hemlock and oak bark, and charcoal

reported at the two censuses as was made in connection with the quantities of railway ties reported. The quantities are all more or less short of the country's total production of these products, and the statistics relating to them are valuable chiefly in showing the increase in prices between the two censuses. The advance in fence posts was from \$6.94 per hundred in 1900 to \$7.17 in 1905. Hemlock bark increased between the two censuses from \$4.11 per cord to \$5.99, while oak bark advanced from \$5.76 in 1900 to \$6.74 in 1905. Charcoal increased from \$6.77 per hundred bushels in 1900 to \$7.08 in 1905.

In addition to the products shown in Table 10 there were reported by the logging camps of the country at the census of 1905 numerous other forest products, including basket stock, cooperage stock, excelsior stock, wheel stock, handle stock, piles, masts and spars,

ship knees, etc., to the value of \$7,075,741. The value of the corresponding group of products at the census of 1900 was \$4,126,704, or an increase of 71.5 per cent.

SAWMILLS.

Logs and bolts, products of the logging industry, constitute the raw material of the sawmill industry and rough lumber is its leading product. The term "rough lumber" comprises all sawed products reported in thousand feet, board measure, such as planks, boards, scantlings, furniture stock, carriage and wagon stock, agricultural implement stock, bobbin and spool stock, and dimension stock. Among the other principal products of the industry are shingles; cooperage materials; veneers, cut, sawed, and sliced; and laths. In Table 11 are presented, by states and territories, the statistics of the sawmill industry.

TABLE 11.—SAWMILLS—SUMMARY, BY STATES AND TERRITORIES: 1905.

STATE OR TERRITORY.	Num-ber of estab-lish-ments.	Capital.	SALARIED OFFICIALS, CLERKS, ETC.		WAGE-EARNERS.		Miscellane-ous ex-penses.	Cost of ma-terials used.	Value of products.
			Number.	Salaries.	Average number.	Wages.			
United States.....	18,277	\$381,621,184	14,532	\$16,199,737	223,674	\$100,310,891	\$35,966,395	\$263,865,101	\$491,524,662
Alabama.....	572	7,737,847	514	512,853	8,028	2,779,968	914,093	6,875,778	14,408,796
Alaska.....	6	183,504	4	8,000	55	65,890	8,573	80,074	239,141
Arizona.....	5	998,923	17	45,550	296	229,580	38,021	384,027	870,241
Arkansas.....	837	19,406,773	975	1,067,211	13,190	5,599,908	2,256,387	11,402,421	23,728,565
California.....	289	18,692,805	433	584,660	5,990	3,844,900	1,560,189	7,721,222	15,337,850
Colorado.....	86	1,068,718	47	37,965	688	389,632	130,270	803,794	1,569,495
Connecticut.....	101	674,462	26	19,878	417	199,121	81,642	598,461	997,880
Delaware.....	74	152,644	1	48	167	56,432	12,326	189,628	339,255
Florida.....	176	7,918,864	435	490,883	6,262	2,306,403	749,998	4,864,279	10,320,754
Georgia.....	695	6,619,874	482	482,800	8,276	2,668,255	663,121	5,732,774	12,762,769
Idaho.....	91	2,197,853	67	85,595	825	498,570	310,150	1,144,605	2,047,827
Illinois.....	265	4,742,911	184	187,995	3,009	1,241,411	446,711	2,928,339	5,381,506
Indian Territory.....	39	164,916	8	4,840	211	90,272	33,379	238,013	440,312
Indiana.....	772	8,471,051	424	380,106	5,900	2,459,382	666,966	7,987,774	13,987,856
Iowa.....	49	6,600,983	97	130,838	1,196	593,024	316,018	3,078,361	5,080,614
Kansas.....	4	8,135			11	4,306	1,966	4,875	20,700
Kentucky.....	825	9,192,558	419	400,032	5,420	2,002,839	716,781	6,574,399	11,566,532
Louisiana.....	387	26,013,520	1,374	1,716,055	14,292	6,531,412	3,320,131	14,159,649	31,052,072
Maine.....	716	11,782,799	293	274,103	6,539	3,026,588	950,645	9,704,750	15,320,310
Maryland.....	203	1,132,862	33	37,912	1,039	398,324	85,274	1,513,342	2,341,222
Massachusetts.....	284	2,782,849	35	67,133	1,215	618,493	259,852	2,716,277	4,342,382
Michigan.....	693	30,583,370	939	1,020,978	15,972	7,726,365	2,832,420	19,431,328	34,446,919
Minnesota.....	190	22,399,739	500	696,147	7,215	3,869,435	2,134,250	16,751,232	25,848,222
Mississippi.....	609	16,150,521	854	953,194	11,446	4,639,796	1,657,850	10,314,182	21,767,928
Missouri.....	363	6,100,983	337	358,067	5,919	2,317,673	699,469	4,519,950	9,889,516
Montana.....	38	3,482,605	89	143,044	971	722,006	230,042	1,241,381	2,441,693
Nebraska.....	4	19,414	1	978	8	3,881	1,720	7,469	19,624
New Hampshire.....	379	4,793,118	41	44,560	2,295	1,028,263	289,641	4,164,438	6,221,511
New Jersey.....	111	707,787	7	3,748	499	217,689	45,542	508,659	919,902
New Mexico.....	23	1,430,711	61	76,194	666	289,972	133,031	561,700	1,237,847
New York.....	813	9,356,300	232	252,760	4,421	2,039,841	632,578	6,826,118	11,314,124
North Carolina.....	1,199	6,557,388	439	404,475	8,342	2,546,254	682,755	7,106,420	13,857,302
Ohio.....	821	9,481,895	381	314,806	4,859	2,175,925	883,718	5,972,214	11,423,391
Oregon.....	348	7,808,342	275	344,585	3,973	2,460,228	798,040	5,482,840	9,576,041
Pennsylvania.....	1,185	16,924,781	463	466,188	8,721	4,216,314	1,386,407	17,002,806	27,283,257
Rhode Island.....	20	136,091	1	1,200	89	44,479	11,085	125,110	224,805
South Carolina.....	432	5,374,491	223	224,607	4,951	1,364,806	409,701	2,936,989	6,200,919
South Dakota.....	18	117,666	6	4,900	68	39,874	9,613	111,373	191,047
Tennessee.....	1,009	13,136,047	533	525,955	9,643	3,399,335	1,053,693	9,569,053	17,925,004
Texas.....	294	12,251,915	764	868,830	6,491	2,824,410	847,098	6,960,691	13,651,334
Utah.....	41	74,219	6	1,470	68	37,003	5,079	67,454	130,279
Vermont.....	417	3,543,108	61	47,099	2,328	995,773	296,130	2,870,177	4,947,439
Virginia.....	789	7,194,499	282	272,866	6,514	2,155,940	705,583	5,227,275	11,127,430
Washington.....	809	27,605,606	917	1,109,551	15,615	10,105,935	3,051,691	18,823,453	37,053,604
West Virginia.....	620	8,784,358	315	338,346	5,295	2,398,473	811,658	7,265,276	13,423,578
Wisconsin.....	549	30,697,699	930	1,128,882	14,088	7,026,690	2,773,872	21,108,648	37,872,672
Wyoming.....	24	78,369	1	1,200	50	28,716	50,894	24,763	110,734
All other states ¹	3	286,038	6	10,380	51	31,045	10,342	150,860	262,441

¹ Includes establishments distributed as follows: Nevada, 2; Oklahoma, 1.

The data covered by the table relate exclusively to the sawmill branch of the lumber industry. In establishments in which logging operations, planing, or both, were carried on jointly with sawmills the figures have been segregated so as to show the capital invested, persons employed, wages, miscellaneous expenses, cost of materials, and value of products for the sawmill branch alone. The number of establishments, 18,277, comprises, therefore, only such plants as reported some or all the products of the sawmill industry.

The item of capital covers: (1) Investments in land for the plant site; (2) buildings of all kinds used exclusively by sawmill establishments in producing the products reported, including dry kilns, office buildings, and in certain instances dwellings occupied by officers and other employees; (3) all machinery used in the manufacturing process from the taking of the logs from the pond or yard to the delivery of the sawed products in the market; and (4) live capital, which includes, in addition to bills receivable, unsettled ledger accounts, cash on hand, and other sundries, the stock of sawmill material delivered at the mills and the unsold sawed products in mills, dry kilns, and yards.

Salaries and wages include the value to salaried officials and wage-earners of board and quarters when furnished as part compensation by milling establishments. The cost of materials includes the cost delivered at the mill of all logs or bolts owned and used during the census year, together with amounts paid for mill supplies, saws, files, fuel, and all other materials. Under "products" are included the value of all merchant sawed products, together with the amount received for contract or custom sawing, but not the value of contract or custom sawed lumber.

In the sawmill industry the average plant in the United States at the census of 1905 reported capital to the amount of \$20,880, employed 12 wage-earners, paid out \$5,488 in wages, expended for materials \$14,437, and turned out a product valued at \$26,893. The average plant is therefore substantially larger than in 1900, when the amount of capital averaged \$16,339; the number of wage-earners employed, 11; the amount of wages paid, \$4,120; the cost of materials, \$9,633; and the value of products, \$18,768. At both censuses the average mill plant in several of the states and territories, as gauged by the value of products, was far above that of the whole country. In Arizona at the census of 1905 the average value of products per establishment was \$174,048; in Iowa, \$103,686; in Minnesota, \$136,043; in Wisconsin, \$68,985; in Washington, \$45,802; in Montana, \$64,255; in Louisiana, \$80,238; in Florida, \$58,641; and in California, \$53,072.

In the sawmill industry, as in logging, wages as a rule were higher in the relatively newer lumber regions, where the industry is conducted on a larger scale and along the most modern lines. The highest wages were paid in the mills in the Pacific Coast states, and the lowest in the older lumber sections of the Southern and the Northeastern states.

The substantial increase in average wages in the sawmill industry for the United States as a whole at the census of 1905 over the rate for 1900 is noteworthy. The drift of the industry has been westward, and in general from states and regions of relatively low wages to those of higher. A far larger proportion of the total lumber product at the census of 1905 was cut west of the Mississippi river than was the case in 1900. The mills in this region employed 34.8 per cent of the total number of wage-earners engaged in the industry at the census of 1905 and paid 40.5 per cent of the wages, as compared with 27.7 per cent of the wage-earners and 30.5 per cent of the wages at the census of 1900. The number of wage-earners employed in Washington was 60.8 per cent greater in 1905 than in 1900, and the increase for the 3 Pacific Coast states was more than 50 per cent. The average wages throughout the country at the census of 1905 was therefore more largely influenced by the wages paid in states and sections where higher rates of pay obtained at both censuses than was the case in 1900. Hence the increase in individual states between the two censuses was not so marked as the increase in the average for the country as a whole would indicate.

Table 12 shows, for 1900 and 1905, the rank of the principal lumber states in value of products, amount of capital invested, number of establishments, average number of wage-earners, and total wages paid.

In the value of sawmill products, as in that of logging products, Wisconsin stood first at the census of 1905, although Washington surpassed it in the showing of the combined industry. This is due to the fact that a larger percentage of the logging product in Washington was turned out by independent camps.

The most conspicuous gains in the value of sawmill products between the two censuses were made by Washington, which advanced from sixth place to second, while Louisiana rose from eleventh to fourth; Mississippi, from tenth to eighth; California, from twenty-second to tenth; and Alabama, from eighteenth to twelfth. Michigan, which ranked first in 1900, dropped to third place at the census of 1905; Pennsylvania, from third to fifth; Minnesota, from fourth to sixth; Indiana, from fifth to thirteenth; and Ohio, from eighth to nineteenth.

TABLE 12.—SAWMILLS—RANK OF LEADING LUMBER STATES IN VALUE OF PRODUCTS, CAPITAL, NUMBER OF ESTABLISHMENTS, NUMBER OF WAGE-EARNERS, AND WAGES: 1905 AND 1900.

STATE.	VALUE OF PRODUCTS.		CAPITAL.		NUMBER OF ESTABLISHMENTS.		WAGE-EARNERS AND WAGES.			
							Average number.		Wages.	
	1905	1900	1905	1900	1905	1900	1905	1900	1905	1900
Wisconsin.....	1	2	1	1	17	14	4	2	3	2
Washington.....	2	6	3	5	8	22	2	7	1	3
Michigan.....	3	1	2	2	13	7	1	1	2	1
Louisiana.....	4	11	4	8	20	25	3	13	4	10
Pennsylvania.....	5	3	8	4	2	1	8	4	7	4
Minnesota.....	6	4	5	8	29	26	12	10	8	5
Arkansas.....	7	7	7	7	4	12	5	3	5	6
Mississippi.....	8	10	9	15	15	18	6	11	6	12
Tennessee.....	9	9	10	11	3	6	7	5	10	8
California.....	10	22	7	13	25	30	17	23	9	16
Maine.....	11	16	12	9	11	16	14	17	11	11
Alabama.....	12	18	20	20	16	13	11	12	13	19
Indiana.....	13	5	17	14	10	3	18	8	17	7
North Carolina.....	14	13	24	16	1	4	9	6	15	17
Texas.....	15	17	11	12	24	21	15	18	12	13
West Virginia.....	16	20	16	22	14	15	21	22	18	23
Georgia.....	17	15	22	24	12	10	10	9	14	18
Kentucky.....	18	12	15	19	5	9	20	15	24	14
Ohio.....	19	8	13	10	6	2	23	14	21	9
New York.....	20	14	14	6	7	5	24	20	23	15
Virginia.....	21	19	21	23	9	8	13	16	22	20
Florida.....	22	23	18	18	30	27	16	19	20	21
Missouri.....	23	21	25	17	22	11	19	21	19	22
Oregon.....	24	24	19	26	23	29	25	28	16	24
New Hampshire.....	25	25	27	21	21	22	28	25	27	25
South Carolina.....	26	29	26	30	18	19	22	24	25	29
Illinois.....	27	26	28	29	27	17	26	27	26	26
Iowa.....	28	27	23	25	36	31	30	31	31	30

The large increases in the value of output have been made by those states situated in regions where the lumber industry is of later development, while the principal losses in rank occurred in the Central states, where the supply of merchantable timber has been practically exhausted, the industry being supported at present to a considerable extent by material imported from other states, and in the Lake region, where the shrinkage in lumber production is due also to the rapid depletion of the forests.

The changes in rank under the heading of "capital" have not been so marked in the sawmill industry as was the case in logging, and the reasons therefor are indicated in the discussion of Table 7. The rapid growth of the industry in certain states is brought out clearly by the substantial increase in the number of wage-earners employed and in total wages paid.

Washington, which stood seventh in 1900 in the number of wage-earners, advanced to second place at the census of 1905; Louisiana rose from thirteenth to third; Mississippi, from eleventh to sixth; and California, from twenty-third to seventeenth. In amount of wages paid Washington advanced from third place to first; Louisiana, from tenth place to fourth; Mississippi, from twelfth place to sixth; and California, from sixteenth place to ninth.

Since rough lumber constitutes the bulk of the production of the sawmill industry, the quantity of this product affords perhaps the most accurate measure of the magnitude of the individual plants. In Table 13 the lumber mills reporting at the censuses of 1900 and 1905 are classified according to the quantity of lumber cut, by states and territories.

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TABLE 13.—SAWMILLS, CLASSIFIED ACCORDING TO NUMBER OF THOUSAND FEET, BOARD MEASURE, OF ROUGH LUMBER SAWED: 1905 AND 1900.

STATE OR TERRITORY.	Census.	Total.	NUMBER OF MILLS SAWING—						STATE OR TERRITORY.	Census.	Total.	NUMBER OF MILLS SAWING—						
			50 M to 500 M feet.	500 M to 1,000 M feet.	1,000 M to 5,000 M feet.	5,000 M to 10,000 M feet.	10,000 M to 50,000 M feet.	50,000 M feet and over.				50 M to 500 M feet.	500 M to 1,000 M feet.	1,000 M to 5,000 M feet.	5,000 M to 10,000 M feet.	10,000 M to 50,000 M feet.	50,000 M feet and over.	
United States.	1905 1900	16,446 19,976	7,575 8,677	3,399 5,179	4,026 4,827	660 607	739 655	47 31	Missouri.....	1905 1900	317 584	144 340	67 115	81 110	16 8	8 10	1 1	
Alabama.....	1905 1900	548 738	186 311	137 203	162 175	27 27	36 22		Montana.....	1905 1900	36 69	7 8	7 15	13 30	3 11	5 5		
Alaska.....	1905 1900	6 8		2 5	4 2				Nebraska.....	1905 1900	4 11	2 9	2 2					
Arizona.....	1905 1900	5 13	3 11				2 1		Nevada.....	1905 1900	2 1	1 1				1		
Arkansas.....	1905 1900	745 704	287 202	152 199	228 204	41 35	36 33	1 1	New Hampshire....	1905 1900	360 373	123 123	72 110	153 126	10 8	2 6		
California.....	1905 1900	245 222	68 68	44 46	80 62	20 21	32 25	1	New Jersey.....	1905 1900	109 107	84 62	18 30	6 14	1 1			
Colorado.....	1905 1900	86 111	36 29	19 34	27 39	2 9	2		New Mexico.....	1905 1900	23 26	11 8	3 4	6 14		3		
Connecticut.....	1905 1900	90 127	47 64	24 27	28 34		2		New York.....	1905 1900	771 1,042	527 645	128 248	92 126	12 13	12 10		
Delaware.....	1905 1900	72 67	46 41	22 18	4 8				North Carolina....	1905 1900	1,157 1,219	535 639	297 283	271 258	33 32	21 7		
Florida.....	1905 1900	162 305	25 92	23 71	65 89	30 30	18 23	1	North Dakota ¹	1900	4	2	1	1				
Georgia.....	1905 1900	646 821	247 260	140 246	203 262	28 30	28 23		Ohio.....	1905 1900	736 1,100	491 525	164 362	75 203	4 6	2 3	1	
Idaho.....	1905 1900	86 87	19 46	20 16	35 25	8	4		Oklahoma.....	1905 1900	1 25			1				
Illinois.....	1905 1900	239 372	161 248	41 79	32 39	1 1	4 4	1	Oregon.....	1905 1900	324 287	115 101	78 77	91 78	17 13	20 17	3 1	
Indian Territory...	1905 1900	38 37	17 28	10 5	11 4				Pennsylvania.....	1905 1900	1,099 1,501	660 715	199 382	169 313	31 40	37 49	3 2	
Indiana.....	1905 1900	718 1,159	414 590	148 291	147 259	5 12	4 7		Rhode Island.....	1905 1900	19 23	10 13	2 2	7 8				
Iowa.....	1905 1900	49 110	31 66	4 22	2 10	1 1	11 10	1	South Carolina....	1905 1900	398 407	163 169	97 104	117 121	13 11	7 2	1	
Kansas.....	1905 1900	4 25	3 22		1 1				South Dakota.....	1905 1900	18 29	11 14	2 6	5 8				
Kentucky.....	1905 1900	745 774	435 483	163 192	131 176	13 17	3 6		Tennessee.....	1905 1900	864 939	491 478	183 244	167 189	14 19	9 9		
Louisiana.....	1905 1900	364 292	56 55	41 67	132 102	44 31	89 37	2	Texas.....	1905 1900	277 392	32 110	66 103	117 121	26 20	32 38	4	
Maine.....	1905 1900	591 522	307 267	115 121	125 92	26 26	18 16		Utah.....	1905 1900	41 46	33 41	7 4	1 1				
Maryland.....	1905 1900	195 224	108 105	53 75	28 40	2 4	4		Vermont.....	1905 1900	410 472	195 230	111 123	100 117	2 2	2		
Massachusetts.....	1905 1900	279 331	135 125	60 105	81 99	1 1	2 1		Virginia.....	1905 1900	728 823	300 331	191 263	214 211	8 10	14 8	1	
Michigan.....	1905 1900	557 1,028	209 337	84 259	157 301	51 53	56 75	3	Washington.....	1905 1900	447 317	88 85	75 46	158 122	56 29	65 31	5 4	
Minnesota.....	1905 1900	180 244	87 80	25 55	20 42	4 6	32 47	12 14	West Virginia.....	1905 1900	545 568	271 224	97 182	140 143	26 7	11 12		
Mississippi.....	1905 1900	574 519	174 171	107 141	213 157	36 25	41 25	3	Wisconsin.....	1905 1900	503 686	162 159	93 189	126 199	48 44	66 93	8 2	
									Wyoming.....	1905 1900	24 25	18 19	6 4	1 1				

¹ No mills reported in 1905.

The table shows the distribution among the various states of the lumber producing mills, classified according to the quantity of lumber cut, and indicates the location of the centers of heaviest production. Mills engaged exclusively in sawing shingles, cooperage materials, etc., are not included. That the capacity of the average lumber mill plant was substantially larger as reported in 1905 than in 1900 is clearly evident. The number of mills the annual cut of which was 50,000,000 feet or over increased between the two censuses from 31 to 47, or 51.6 per cent; the number cutting from 10,000,000 to 50,000,000 feet increased from 655 to 739, or 12.8 per cent; and the number of mills the cut of which during the census year was from 5,000,000 to 10,000,000 feet increased from 607 to 660, or 8.7 per cent. The proportion of mills cutting 1,000,000 feet or more increased from 30.6 per cent of all mills in 1900 to 33.3 per cent in 1905.

The product of rough lumber cut by the mills of the

several groups may be roughly approximated by multiplying the mean cut of each group by the number of mills it contains. Carrying out this process, it appears that the mills of the first group, which cut 5.1 per cent of the total at the census of 1900, cut 4.4 per cent at the census of 1905, while the mills of the second group cut 8.3 and 5.4 per cent; those of the third group, 30.8 and 25.5 per cent; those of the fourth group, 9.7 and 10.5 per cent; those of the fifth group, 41.8 and 46.8 per cent; and those of the sixth group, 4.3 and 7.4 per cent, respectively. The mills of the fifth and sixth groups combined, which constituted only 3.4 per cent of all mills in 1900 and 4.8 per cent in 1905, cut 46.5 per cent and 54.2 per cent, respectively, of the total rough lumber product at the two censuses.

In Table 14 are presented the quantity and value of the principal sawed products, together with the percentage which the value of each is of the value of all sawmill products, for 1900 and 1905.

TABLE 14.—SAWMILLS—QUANTITY AND VALUE OF PRINCIPAL PRODUCTS, WITH PER CENT THAT THE VALUE OF EACH IS OF THE TOTAL VALUE OF PRODUCTS: 1905 AND 1900.

	1905			1900		
	Quantity.	Value.		Quantity.	Value.	
		Amount.	Per cent of total.		Amount.	Per cent of total.
Rough lumber, M feet B. M.....	34,135,139	\$435,708,084	85.0	33,464,850	\$372,909,923	89.5
Shingles, M.....	14,547,477	24,009,610	4.7	11,947,620	18,549,873	4.2
Cooperage materials:						
Hoops, M.....	546,879	3,159,973	0.6	440,859	2,666,555	0.6
Staves, M.....	2,464,689	19,082,641	3.7	1,658,375	13,669,233	3.1
Headings, M sets.....	125,354	7,436,259	1.5	111,180	4,338,881	1.0
Laths, M.....	2,647,847	5,435,968	1.1	2,501,314	4,647,591	1.1

The proportions in which the several items entered into the total value of sawmill products were substantially the same at the two censuses. The general upward tendency in values was pronounced. Rough lumber increased 670,289 thousand feet, or 2 per cent, in quantity and \$62,798,161, or 16.8 per cent, in value between the two censuses. Shingles increased 2,599,857 thousand in quantity, or 21.8 per cent, and \$5,459,737 in value, or 29.4 per cent. In quantity hoops increased 106,020 thousand, or 24 per cent, and in value \$493,418, or 18.5 per cent. Staves increased

in quantity 806,314 thousand, or 48.6 per cent, and in value \$5,413,408, or 39.6 per cent. The increase in the quantity of headings was slight, being only 14,174 thousand sets, or 12.7 per cent, while in value the increase was \$3,097,378, or 71.4 per cent. Laths increased in quantity 146,533 thousand, or 5.9 per cent, and in value \$788,377, or 17 per cent.

In Table 15 are presented, by species, and states and territories, the quantity and value of rough lumber reported at the census of 1905. Custom or contract sawed lumber is included.

TABLE 15.—SAWMILLS—ROUGH LUMBER PRODUCTION,

STATE OR TERRITORY.	AGGREGATE.		ROUGH LUMBER.							
			Conifers.							
			Total.		Yellow pine.		White pine.		Hemlock.	
	M feet, B. M.	Value.	M feet, B. M.	Value.	M feet, B. M.	Value.	M feet, B. M.	Value.	M feet, B. M.	Value.
1 United States.....	34,135,139	\$435,708,084	27,353,312	\$319,835,746	12,812,307	\$129,366,749	5,332,704	\$79,594,717	3,268,787	\$38,938,154
2 Alabama.....	1,243,988	13,563,815	1,137,706	11,744,484	1,116,118	11,320,909				
3 Alaska.....	7,974	232,664	7,974	232,664						
4 Arizona.....	55,601	814,184	55,601	814,184	55,401	810,184				
5 Arkansas.....	1,680,536	18,816,594	1,120,423	10,676,379	1,056,163	9,729,380				
6 California.....	1,077,499	14,068,745	1,077,341	14,040,330	388,623	4,953,292			9	180
7 Colorado.....	141,914	1,489,267	135,314	1,405,147	104,318	1,059,289				
8 Connecticut.....	69,376	1,055,010	17,296	226,569			13,663	177,148	3,633	49,421
9 Delaware.....	30,416	331,441	25,152	232,988	25,027	230,675				
10 Florida.....	812,693	9,560,621	811,862	9,544,256	745,641	8,133,102				
11 Georgia.....	1,135,910	11,912,800	1,101,773	11,433,356	1,063,662	10,613,950			425	7,750
12 Idaho.....	211,447	2,053,725	211,447	2,053,725	131,127	1,280,709	13,155	119,706		
13 Illinois.....	211,545	3,607,643	59,945	1,048,334			56,248	989,350		
14 Indian Territory.....	30,980	400,922	10,995	118,794	10,995	118,794				
15 Indiana.....	563,853	12,053,906	3,120	68,130			2,730	60,060	240	4,320
16 Iowa.....	281,521	4,835,869	270,740	4,666,077			269,340	4,645,077	1,400	21,000
17 Kansas.....	2,120	30,615								
18 Kentucky.....	586,371	9,886,233	44,520	465,045	31,597	312,629	500	5,000	9,968	111,891
19 Louisiana.....	2,459,327	28,477,915	2,362,182	26,854,234	1,929,949	19,332,652				
20 Maine.....	863,860	12,331,401	833,158	11,776,739			245,399	3,588,120	97,612	1,138,010
21 Maryland.....	166,469	2,154,723	105,283	1,194,414	67,700	706,432	1,022	14,316	30,278	393,057
22 Massachusetts.....	262,467	4,820,094	215,315	2,962,547			154,749	1,870,158	18,900	250,957
23 Michigan.....	2,006,670	27,870,710	1,332,505	18,002,999			522,839	8,370,229	785,603	8,810,920
24 Minnesota.....	1,942,248	28,407,920	1,913,569	28,015,482			1,902,532	27,862,440		
25 Mississippi.....	1,727,391	20,526,754	1,414,062	15,493,013	1,358,015	14,549,997				
26 Missouri.....	553,940	6,797,244	234,218	2,312,692	215,318	2,058,073				
27 Montana.....	236,430	2,516,278	236,430	2,516,278	138,476	1,473,423				
28 Nebraska.....	1,862	25,721	100	1,700	100	1,700				
29 New Hampshire.....	491,591	6,415,346	453,977	5,881,481			307,331	3,810,483	36,074	422,855
30 New Jersey.....	44,058	788,074	20,647	286,461	11,381	141,780			785	10,161
31 New Mexico.....	81,113	1,086,569	81,113	1,086,569	62,236	865,486				
32 New York.....	581,976	11,384,266	437,855	7,148,201	15	300	86,947	1,529,995	175,566	2,450,378
33 North Carolina.....	1,318,411	13,109,800	1,095,389	10,644,185	1,068,742	10,336,649			8,758	83,294
34 Ohio.....	420,905	9,036,265	4,806	83,167			4,121	71,617	685	11,550
35 Oregon.....	987,107	9,086,350	982,802	9,014,533	135,807	1,376,519			10,275	81,507
36 Pennsylvania.....	1,738,972	24,574,607	1,302,048	17,172,324	4,571	68,619	123,726	2,244,056	1,166,712	14,756,750
37 Rhode Island.....	15,398	228,816	11,545	163,552			11,095	157,502	450	6,050
38 South Carolina.....	609,789	6,126,477	580,504	5,706,675	549,209	5,205,166			8	86
39 South Dakota.....	13,705	189,731	13,705	189,731	13,705	189,731				
40 Tennessee.....	775,885	13,010,549	109,004	1,276,876	86,674	964,432	5,734	61,890	12,324	146,040
41 Texas.....	1,406,473	13,339,686	1,383,275	12,999,723	1,383,039	12,995,475				
42 Utah.....	12,630	138,094	12,630	138,094	10,740	116,869				
43 Vermont.....	337,238	4,805,396	263,336	3,648,798			13,898	194,568	42,574	533,684
44 Virginia.....	949,797	10,149,158	773,170	7,619,813	763,870	7,508,432	5,345	66,050	233	3,147
45 Washington.....	2,485,628	24,005,206	2,485,028	23,995,006	232,534	2,223,221	4,000	61,250	11,960	114,766
46 West Virginia.....	855,889	13,226,516	299,510	3,748,120	33,995	451,454	9,130	159,716	161,660	1,862,992
47 Wisconsin.....	2,623,157	36,008,518	2,285,658	30,872,281			1,579,200	23,035,986	692,655	7,667,388
48 Wyoming.....	7,990	110,280	7,990	110,280	6,270	88,110				
49 All other states and territories. ¹	13,039	245,566	11,289	149,316	11,289	149,316				

¹ Includes Nevada and Oklahoma.

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[illegible]

MANUFACTURES.

TABLE 15.—SAWMILLS—ROUGH LUMBER PRODUCTION,

STATE OR TERRITORY.	ROUGH LUMBER—continued.													
	Hard woods.													
	Total.		Ash.		Birch.		Chestnut.		Cottonwood.		Elm.		Gum.	
	M feet, B. M.	Value.	M feet, B. M.	Value.	M feet, B. M.	Value.	M feet, B. M.	Value.	M feet, B. M.	Value.	M feet, B. M.	Value.	M feet, B. M.	Value.
1 United States.....	6,781,827	\$115,872,338	109,178	\$3,174,861	224,009	\$3,459,501	243,537	\$3,356,054	321,574	\$4,797,779	258,330	\$3,732,609	523,990	\$5,693,555
2 Alabama.....	106,232	1,819,331	2,641	61,310			400	4,800	390	6,000			13,678	161,268
3 Alaska.....														
4 Arizona.....														
5 Arkansas.....	560,113	8,140,215	14,580	273,203					106,481	1,557,186	15,876	134,782	136,326	1,340,625
6 California.....	158	28,415												
7 Colorado.....	6,600	84,120							4,900	58,620				
8 Connecticut.....	52,080	828,441	292	5,504	768	11,801	26,661	361,650						
9 Delaware.....	5,204	98,453											250	4,845
10 Florida.....	831	16,365	167	2,525									352	6,046
11 Georgia.....	34,137	479,444	426	9,100			1,150	11,850			35	315	425	3,572
12 Idaho.....														
13 Illinois.....	151,600	2,559,309	899	16,240	1,313	26,803			27,369	543,532	8,778	125,177	24,152	299,046
14 Indian Territory.....	19,985	282,128	475	9,650					7,180	102,285			615	6,470
15 Indiana.....	560,733	11,985,776	25,006	547,836	70	750	100	1,200	365	7,300	40,503	666,146	22,102	293,856
16 Iowa.....	10,781	169,792	115	2,300					1,713	27,863	2,516	36,768		
17 Kansas.....	2,120	30,615							550	6,930	745	9,580		
18 Kentucky.....	541,851	9,421,188	4,246	76,265	2	33	7,110	91,678	25	450	3,456	38,028	30,061	329,356
19 Louisiana.....	97,145	1,623,681	2,987	52,610					56,711	849,286			16,778	161,371
20 Maine.....	30,702	554,662	105	1,568	18,342	347,626								
21 Maryland.....	61,186	960,309	1	25	1,000	13,936	11,004	140,029					1,503	17,849
22 Massachusetts.....	47,152	1,857,547	2,281	38,230	1,963	26,463	13,693	203,763						
23 Michigan.....	674,165	9,867,711	34,925	551,503	68,727	964,154			530	7,900	78,255	1,082,083		
24 Minnesota.....	28,679	392,438	228	3,779	1,122	18,290			125	1,575	2,652	32,511		
25 Mississippi.....	313,329	5,033,741	15,499	270,539					66,874	976,265	1,030	13,343	63,107	663,388
26 Missouri.....	319,722	4,484,552	5,356	127,726					22,430	284,173	9,345	125,360	135,496	1,505,008
27 Montana.....														
28 Nebraska.....	1,762	24,021							1,762	24,021				
29 New Hampshire.....	37,614	533,865	796	15,990	5,522	74,800	4,055	58,138						
30 New Jersey.....	23,411	501,613	3	54			8,679	136,543			50	1,400	75	1,500
31 New Mexico.....														
32 New York.....	144,121	4,236,065	2,796	63,026	21,977	372,976	7,337	133,673			4,611	72,853		
33 North Carolina.....	223,022	2,465,615	3,833	49,321	60	935	14,950	151,477					6,944	68,469
34 Ohio.....	416,099	8,953,098	13,082	279,908	306	5,418	6,447	124,552	146	2,220	27,089	446,223	353	5,722
35 Oregon.....	4,305	71,817	1,840	36,027					200	1,400				
36 Pennsylvania.....	436,924	7,402,283	2,448	66,682	14,131	279,025	61,167	847,896			5,754	113,743		
37 Rhode Island.....	3,853	65,264					1,713	26,594						
38 South Carolina.....	29,265	419,802	4,213	71,027			422	7,562	4,660	66,216			3,360	31,917
39 South Dakota.....														
40 Tennessee.....	666,881	11,733,673	8,950	205,776			25,816	366,482	15,173	241,913	3,043	41,257	61,093	717,216
41 Texas.....	23,198	339,963	2,826	44,887					3,990	52,600			2,512	25,120
42 Utah.....														
43 Vermont.....	73,902	1,156,598	3,471	61,360	23,482	341,556	570	9,260			1,442	15,918		
44 Virginia.....	176,627	2,529,345	291	5,398			6,063	90,258					4,381	45,873
45 Washington.....	600	10,200	150	3,000										
46 West Virginia.....	556,379	9,478,396	2,729	53,732	783	10,320	46,200	568,649			255	3,650	527	5,044
47 Wisconsin.....	337,499	5,136,237	10,915	168,500	64,441	964,615					52,895	773,472		
48 Wyoming.....														
49 All other states and territories. ¹	1,750	96,250												

¹ Includes Nevada and Oklahoma.

LUMBER AND TIMBER PRODUCTS.

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BY SPECIES, AND BY STATES AND TERRITORIES: 1905—Continued.

ROUGH LUMBER—continued.															
Hard woods—Continued.															
Hickory.		Basswood.		Oak.		Poplar.		Walnut.		Maple.		Sycamore.		All other hard woods.	
M feet, B. M.	Value.	M feet, B. M.	Value.	M feet, B. M.	Value.	M feet, B. M.	Value.	M feet, B. M.	Value.	M feet, B. M.	Value.	M feet, B. M.	Value.	M feet, B. M.	Value.
106,824	\$2,557,601	228,041	\$3,845,885	2,902,855	\$50,832,303	873,554	\$16,205,312	31,455	\$1,435,509	587,558	\$8,780,727	18,002	\$236,856	312,920	\$7,763,786
2,790	65,200	8	81	50,588	886,746	35,206	627,686	6	240			575	6,000		
15,358	410,506			263,049	4,314,402	5,341	94,281	66	2,700	408	7,430	2,612	24,790	10	250
				64	5,540									94	22,875
						1,700	25,500								
468	12,593	35	420	22,703	398,759	50	1,000	285	8,200	263	2,604			555	5,910
				4,974	92,808	40	800								
745	15,930					312	7,800								
				18,485	230,136	12,771	206,341							100	2,200
6,588	143,648	820	19,475	61,258	912,832	3,118	60,996	3,321	242,367	2,508	32,499	1,605	22,678	9,871	113,966
1,712	33,430			9,157	115,583			168	4,200			160	1,845	518	8,665
29,443	699,091	5,335	174,501	293,821	6,981,348	31,367	701,220	8,359	339,078	36,448	544,810	8,329	118,804	58,885	909,836
		245	4,158	5,863	92,383			86	2,870	223	3,050	20	400		
				575	9,705			50	1,500	200	2,900				
16,043	394,154	4,994	65,911	295,776	4,845,936	153,057	2,750,942	5,094	167,477	2,529	29,175	680	7,515	18,778	624,268
1,129	19,928			16,016	267,845	1,024	12,441							3,500	260,000
		1,040	16,037	7,170	127,254	985	14,300			2,568	39,615			492	8,262
58	1,570	3,000	56,000	40,549	669,450	1,029	16,746	32	1,584	3,010	43,120				
		110	1,210	9,545	170,378	35	475	145	2,350	4,126	58,858			15,254	1,355,820
146	3,325	60,595	1,047,889	32,191	625,769	300	3,300	240	14,800	333,715	4,827,806	50	1,066	64,491	738,116
		8,392	109,954	13,856	197,589	2,135	26,523			169	2,217				
5,254	101,463			138,896	2,585,417	20,638	379,100			150	1,500	195	2,800	1,686	39,926
6,138	157,721	150	2,150	129,913	2,012,107	1,974	42,051	3,328	158,400	1,862	24,136	1,757	22,505	1,973	23,215
		337	6,255	13,685	204,535	340	5,100			5,730	74,762			7,149	94,285
2,099	68,760	10	160	12,034	282,931	195	4,490			216	4,775			50	1,000
576	20,035	9,249	164,277	20,751	443,531	2,715	85,240	2,010	80,700	37,666	646,066			34,433	2,153,688
116	2,093	3,699	37,462	121,554	1,351,695	70,553	792,337	22	640	66	711			1,225	10,475
10,402	229,902	7,152	130,268	253,638	5,545,771	48,026	1,225,391	5,354	272,795	17,652	275,099	1,277	18,708	25,175	391,121
				705	15,065					1,560	19,325				
1,806	47,305	3,132	64,907	232,718	4,057,493	7,050	123,539			57,834	1,057,016	70	1,310	50,814	743,367
				2,140	38,670										
108	3,088	8	154	12,296	172,429	3,950	62,215					100	1,200	150	4,000
4,952	108,813	3,401	50,911	318,729	5,591,502	220,949	4,342,012	889	31,357	801	9,477	572	7,235	1,613	19,722
50	700			13,740	214,956			30	1,000					50	700
		4,165	68,183	3,471	57,495	547	8,752			28,930	483,599			7,824	110,475
110	2,250	2,065	41,514	118,679	1,549,495	44,715	789,487	77	2,702	16	108			230	2,200
										150	3,000			300	4,500
735	16,096	4,877	88,215	304,104	4,756,444	183,432	3,795,247	128	4,027	6,482	87,757			6,127	89,215
		105,222	1,695,793	60,162	1,008,304			15	272	42,276	499,252			1,573	26,029
								1,750	96,250						

Rough lumber.—The discrepancy between the quantity of saw logs produced by logging camps, namely, 27,980,768 thousand feet, board measure, as shown in Table 6, and the rough lumber product of sawmills, namely, 34,135,139 thousand feet, board measure, as given in Table 15, is accounted for as follows:

(1) The rough lumber product includes lumber sawed for customers. The timber from which the latter was manufactured was, as a rule, cut in small quantities by its owners, and the logging operations incident to its handling were seldom of sufficient magnitude to come within the scope of the census of 1905. Likewise, the logs put in by small contractors and those cut for sale by farmers were not in every instance covered by a schedule.

(2) The difference between the scaling of the logs in camp and their yield in lumber, the extent of which varies among the different species of timber and in the different sections of the country; on the whole, however, it is well understood that the actual cut at the mills exceeds the scale of the logs in the woods.

Table 16 shows, for 1900 and 1905, the quantity of the chief species of lumber sawed, with the proportion which the quantity of each formed of the total.

TABLE 16.—Sawed lumber—chief species, by quantity, with proportion of the total quantity sawed: 1905 and 1900.

SPECIES.	QUANTITY (M FEET B. M.).		PER CENT OF TOTAL.	
	1905	1900	1905	1900
Aggregate.....	34,135,139	33,464,850	100.0	100.0
Conifers.....	27,353,312	25,450,702	80.1	76.1
Yellow pine.....	12,812,307	10,231,140	37.5	30.6
White pine ¹	5,332,704	7,606,639	15.6	22.7
Hemlock.....	3,268,787	3,285,045	9.6	9.8
Douglas fir.....	2,928,409	1,725,968	8.6	5.2
Spruce.....	1,303,886	1,409,333	3.8	4.2
All other conifers.....	1,707,219	1,192,577	5.0	3.6
Hard woods.....	6,781,827	8,014,148	19.9	23.9
Oak.....	2,902,855	3,848,363	8.5	11.5
Poplar.....	853,554	1,042,380	2.5	3.1
All other hard woods.....	3,025,418	3,123,405	8.9	9.3

¹ Includes Norway pine.

From Table 16 it will be seen that yellow pine, the timber cut in largest quantity as reported at both censuses, shows a substantial increase; while white pine,

which was second in importance, shows a large decrease. The cut of hemlock at the two censuses was practically the same. A large increase is shown in the quantity of Douglas fir, which is accounted for by the fact that it forms the bulk of the cut in Washington and Oregon, new and active states in the lumber industry. Aside from spruce, the cut of the other conifers was relatively small at both censuses, and the increases and decreases were unimportant except in the case of cypress, which increased from 492,761 to 749,592 thousand feet, or 52.1 per cent. Among the hard woods, oak was the principal species at both censuses, and poplar was next in importance. Decreases are shown in the quantity of these two species, the decrease for oak being marked. Among the remaining hard woods, manufactured in smaller quantities than oak and poplar at both censuses, maple, ash, cottonwood, elm, basswood, black walnut, and sycamore decreased, while birch, chestnut, hickory, and gum increased. The increase in gum was notably large, from 268,251 thousand feet to 523,990, or 95.3 per cent.

The increase in the average value of all lumber was from \$11.14 per thousand feet in 1900 to \$12.76 at the census of 1905, or 14.5 per cent. The advance extended to all species of both conifers and hard woods, and in the case of several of them was large. Among the conifers yellow pine advanced from \$8.59 per thousand feet to \$10.10; white pine, from \$12.72 to \$14.92; hemlock, from \$9.97 to \$11.91; Douglas fir, from \$8.67 to \$9.51; spruce, from \$11.29 to \$14.03; and cypress, from \$13.34 to \$17.50.

The hard woods show without exception material advances in value, the increase in the average for the group being from \$13.84 per thousand feet to \$17.09. Oak increased from \$14.02 per thousand feet to \$17.51; poplar, from \$14.22 to \$18.99; maple, from \$11.83 to \$14.94; cottonwood, from \$10.35 to \$14.92; elm, from \$11.57 to \$14.45; and gum, from \$9.75 to \$10.87.

Shingles.—The sawmill product next in importance to rough lumber, as shown in Table 14, was shingles. In Table 17 are shown, by states and territories, the quantity and value of shingles produced at the census of 1905. Custom or contract sawed shingles are included.

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TABLE 17.—SAWMILLS—PRODUCTION OF SHINGLES, BY SPECIES, AND BY STATES AND TERRITORIES: 1905.

STATE OR TERRITORY.	TOTAL.		CEDAR.		CYPRESS.		YELLOW PINE.		REDWOOD.		WHITE PINE.		ALL OTHER.	
	Number of thousands.	Value.	Number of thousands.	Value.	Number of thousands.	Value.	Number of thousands.	Value.	Number of thousands.	Value.	Number of thousands.	Value.	Number of thousands.	Value.
United States.....	14,547,477	\$24,009,610	10,428,725	\$16,288,222	1,494,038	\$3,359,620	764,382	\$1,420,832	727,076	\$851,626	711,678	\$1,231,572	421,578	\$857,738
Alabama.....	112,093	207,101			38,114	79,688	73,979	127,413					500	5,000
Alaska.....	926	6,477	420	1,477										
Arkansas.....	269,706	547,301			257,916	519,881	11,790	27,420						
California.....	737,589	874,285			3,183	5,731	4,915	12,048	727,076	851,626			2,415	4,880
Colorado.....	950	2,875					950	2,875						
Connecticut.....	6,225	17,843	1,750	6,000							754	2,150	3,721	9,693
Delaware.....	350	2,200			350	2,200								
Florida.....	188,652	451,884			152,624	389,752	36,028	62,132						
Georgia.....	364,378	672,572			13,663	37,252	350,590	635,003					125	317
Idaho.....	41,972	66,044	41,272	64,394			700	1,650						
Illinois.....	12,408	28,393			1,375	3,188					10,788	24,655	245	550
Indian Territory.....	300	750					300	750						
Indiana.....	3,960	8,175									50	150	3,910	8,025
Iowa.....	35,404	68,347									35,404	68,347		
Kentucky.....	43,775	88,655			11,000	24,250	10,280	19,545					22,495	44,860
Louisiana.....	801,866	1,633,958			770,816	1,568,075	31,050	65,883						
Maine.....	482,414	983,775	409,618	847,125							21,916	42,909	50,880	93,741
Maryland.....	6,677	29,761			1,275	8,025	1,557	7,786					3,845	13,950
Massachusetts.....	10,086	26,635	1,879	5,417							6,020	15,037	2,187	6,181
Michigan.....	1,347,163	2,490,106	1,206,049	2,200,569							95,957	202,472	45,157	87,065
Minnesota.....	318,783	477,251	35,162	69,314							283,621	407,937		
Mississippi.....	50,654	112,301			20,983	50,171	29,671	62,130						
Missouri.....	74,036	152,728			65,615	137,366					6,571	12,287	1,850	3,075
Montana.....	4,586	7,827	4,086	6,827			500	1,000						
New Hampshire.....	17,327	37,833	962	2,720							4,103	9,514	12,262	25,599
New Jersey.....	31,411	145,637	30,377	140,997			999	4,400					35	180
New Mexico.....	950	1,900					950	1,900						
New York.....	55,581	126,361	11,780	31,835							13,271	31,107	30,530	63,419
North Carolina.....	192,239	565,834	12,005	56,873	101,905	353,422	77,481	153,136					848	2,403
Ohio.....	3,820	11,340	2,000	7,000							1,000	2,000	820	2,340
Oregon.....	117,511	174,883	99,233	145,991			1,810	4,080					16,468	24,812
Pennsylvania.....	115,211	280,794									8,459	24,530	106,752	256,264
Rhode Island.....	620	1,838	475	1,463							125	315	20	60
South Carolina.....	81,108	204,616	1,200	4,800	28,930	101,434	50,598	97,761					380	621
South Dakota.....	260	680					260	680						
Tennessee.....	35,121	61,415	687	3,135	250	687	13,850	24,725					20,334	32,868
Texas.....	75,926	133,428			17,640	46,099	58,286	87,329						
Utah.....	560	1,180					550	1,180						
Vermont.....	16,415	34,977	3,580	8,595							2,650	5,262	10,185	21,120
Virginia.....	30,388	187,572	17,000	136,000	8,399	32,399	2,549	9,825			75	188	2,365	9,160
Washington.....	8,357,457	12,203,631	8,339,467	12,176,376			490	1,255					17,500	26,000
West Virginia.....	24,630	62,666					3,764	7,216			7,096	25,823	13,720	29,427
Wisconsin.....	474,928	812,541	209,667	371,114							213,818	356,889	51,443	84,538
Wyoming.....	1,071	3,240					485	1,650					586	1,590

Conifers supplied the bulk of the timber used as shingle material, and of these the various cedar species furnished by far the larger part at both censuses. At the census of 1900 cedar shingles formed 53.1 per cent of the total output, while at the census of 1905 they constituted 71.7 per cent. Cypress was the species next in importance to cedar at the census of 1905, the production of cypress shingles showing an increase over 1900 of 247,422 thousand, or 19.8 per cent. White pine shingles decreased 1,107,248 thousand, or 60.9 per cent. The cut of redwood shingles increased 97,821 thousand, or 15.5 per cent. The production of hemlock shingles decreased 147,547 thousand, or 40.2 per cent; of spruce shingles, 127,477 thousand, or 61.4 per cent; and of Douglas fir shingles, 191,559 thousand, or 84.8 per cent. Of the remaining species, chiefly hard woods, the production decreased 252,702 thousand, or 22.9 per cent.

The average value per thousand of all shingles advanced from \$1.55 in 1900 to \$1.65 for 1905, an increase of 10 cents, or 6.5 per cent. The increases for the principal species between the two censuses were as follows: Cedar, from \$1.49 to \$1.56; cypress, from \$1.83 to

\$2.25; redwood, from \$1.05 to \$1.17; yellow pine, from \$1.60 to \$1.86; white pine, from \$1.58 to \$1.73; hemlock, from \$1.98 to \$2.04; and spruce, from \$1.80 to \$2.02.

Among the states, Washington was preeminent in the manufacture of shingles at the census of 1905. Although constituting a part of the sawed product of nearly all the states, shingles were produced in many of them chiefly as a by-product of lumber, slabs being utilized as material. In Washington, however, the production of shingles is an important industry in itself, the number of plants engaged exclusively in the manufacture of this product forming a considerable percentage of the total number of sawmills in the state.

The growth of the shingle industry in Washington has been rapid, having developed to large proportions since 1890. At that census the production in the state constituted only 5.9 per cent of the total output in the United States, while ten years later it had increased to 36.3 per cent, and at the census of 1905 reached the enormous proportion of 57.4 per cent of the total production for the United States.

Cooperage materials.—The production of cooperage materials is an important industry in certain states whose timber is especially adapted to the purpose. In

Table 18 are shown the kind, quantity, and value of cooperage materials manufactured in the principal states engaged in their production at the census of 1905.

TABLE 18.—SAWMILLS—PRODUCTION OF COOPERAGE MATERIALS: 1905.

STATE.	STAVES.		HEADINGS.		HOOPS.	
	Number of thousands.	Value.	Number of sets.	Value.	Number of thousands.	Value.
United States.....	2,464,689	\$19,082,641	125,353,528	\$7,436,259	546,879	\$3,159,973
Arkansas.....	257,730	2,772,964	10,928,596	1,166,701	22,876	161,676
Indiana.....	158,526	707,110	5,581,957	297,767	52,004	364,215
Kentucky.....	101,397	1,440,873	5,365,020	242,609	22,626	126,104
Michigan.....	279,138	1,745,786	20,760,572	889,269	148,720	1,023,451
Missouri.....	197,271	1,362,111	15,126,397	969,742	38,907	227,337
Ohio.....	248,370	1,658,598	4,077,888	174,364	204,822	837,095
Pennsylvania.....	256,759	1,354,600	9,275,464	475,026	1,625	12,375
Tennessee.....	219,466	2,786,108	5,516,317	783,984	23,079	157,822
All other states.....	746,032	5,254,491	48,721,317	2,436,797	32,220	249,878

While all the hard wood states were heavy producers of staves, headings, and hoops at the census of 1905, Arkansas led in the value of these products and Tennessee was second. The bulk of the high grade or tight cooperage material manufactured in the United States was produced in Kentucky, Tennessee, and Arkansas, and was made chiefly from the excellent white oak timber which is found in these states. The average value of staves, the principal item of cooperage materials, was—for Kentucky, \$14.21 per thousand; for Tennessee, \$12.69; and for Arkansas, \$10.76; while the average for the United States was only \$7.74. The large production of relatively low value reported for Michigan was due mainly to the heavy salt production in that state, for which only an inferior grade of staves is required.

Veneers.—Of the remaining products of which logs or bolts are the materials, the most important is veneers. The manufacture of this product is fast becoming an important branch of the lumber industry. Unfortunately it is not practicable to present the statistics of the veneer industry in its entirety, for the reason that much of the output was manufactured in establishments which consumed it as material in the manufacture of furniture, musical instruments, sewing machine cases, office fixtures, baskets, packing boxes, crates, etc. The proportion of the total which was manufactured and consumed in establishments of this character, though doubtless large, can not be satisfactorily estimated from the data available. The magnitude of the production reported at the census

of 1905 and the rapid development of this branch of the lumber industry during the last few years make it desirable, however, that the statistics be presented, even though they are incomplete, as a basis for future comparisons.

The production at the census of 1905, or that portion of it which reached the market as veneers, amounted to 998,538 thousand square feet, valued at \$6,095,207. One hundred and forty-nine establishments in 26 states contributed to this total. Forty-two of these were engaged exclusively and 46 chiefly or largely in the manufacture.

In Table 19 are shown the statistics of these 88 establishments. In order that the figures might relate exclusively to the manufacture of veneers, it was necessary to make an estimated apportionment of the capital, employees, salaries and wages, cost of materials, miscellaneous expenses, and power of the 46 establishments which did not manufacture veneers exclusively and to eliminate the data pertaining to their other products. In making these segregations the ratios obtaining between the several items on the schedules of the 42 plants whose entire product consisted of veneers were used as a guide, so that the statistics are believed to represent the conditions in the industry with substantial exactness.

In the remaining 61 establishments veneers were a minor product, the bulk of the output of these plants consisting of rough and dressed lumber, shingles, staves, headings, etc.

TABLE 19.—SAWMILLS—PRODUCTION OF VENEERS, BY STATES: 1905.

[Includes the returns of 42 establishments manufacturing veneers exclusively, and the veneer output of 46 others, with estimates of the capital, employees, salaries and wages, materials, and miscellaneous expenses involved in its production.]

STATE.	Number of establishments.	Capital.	SALARIED OFFICIALS, CLERKS, ETC.		WAGE-EARNERS.		Miscellaneous expenses.	Cost of materials used.	PRODUCTS.		Power (number horse-power).
			Number.	Salaries.	Average number.	Wages.			Quantity (M square feet).	Value.	
Total.....		\$4,730,422	175	\$193,356	3,091	\$1,226,363	\$366,642	\$2,240,640	713,463	\$4,880,295	9,471
Illinois.....	5	880,210	21	26,320	415	159,635	65,950	272,900	87,617	577,450	1,037
Indiana.....	17	746,449	29	40,474	472	211,956	87,436	458,255	89,143	1,000,661	1,664
Maine.....	4	118,854	4	4,420	91	37,340	6,320	39,624	28,868	110,156	158
Michigan.....	8	771,332	26	18,804	420	181,972	53,338	326,870	141,235	701,608	1,872
Mississippi.....	4	100,700	3	3,000	113	41,188	10,650	23,350	11,625	98,000	195
Missouri.....	4	250,000	12	12,600	170	71,900	21,600	108,000	26,749	288,108	540
New York.....	9	326,880	8	7,560	128	63,600	27,280	313,885	66,035	458,820	733
North Carolina.....	7	197,294	16	12,440	242	54,347	21,332	82,451	17,900	197,680	502
Ohio.....	5	182,500	10	14,150	60	25,600	19,262	82,250	11,401	179,016	285
Wisconsin.....	9	524,204	23	24,060	505	222,150	21,001	205,984	91,362	607,635	950
Other states ¹	16	631,999	23	29,528	475	156,675	32,473	317,071	141,528	661,161	1,535

¹ Includes establishments distributed as follows: Arkansas, 2; Georgia, 2; Kentucky, 1; Maryland, 1; Massachusetts, 2; Pennsylvania, 1; Tennessee, 2; Vermont, 2; Virginia, 2; West Virginia, 1.

As indicated in Table 19, the industry is confined in the main to the states lying within or near the hard wood belt. This results from the fact that the materials used were almost entirely the hard woods, the entire production involving the use of more than twenty species of these woods, though only fourteen contributed to the total shown in Table 19.

In Table 20 is shown the production of these establishments according to the species of wood used as material.

TABLE 20.—Sawmills—quantity and value of veneers, by species: 1905.

SPECIES.	Quantity (M square feet).	Value.
Total.....	713,463	\$4,880,295
Oak.....	158,747	1,456,427
Maple.....	136,379	653,395
Gum.....	115,124	522,532
Mahogany.....	45,413	399,511
Poplar.....	52,525	398,230
Walnut.....	27,000	397,000
Basswood.....	42,493	329,800
Birch.....	57,372	198,178
Elm.....	34,041	143,996
All other ¹	44,369	381,226

¹ Includes cottonwood, pine, rosewood, red cedar, and cherry.

Veneers were formerly manufactured from the cabinet woods exclusively, and their use was confined to the covering of inferior woods. While this class still forms an important part of the total product of the industry, a large and rapidly increasing proportion is utilized as material in the manufacture of built-up lumber, packing boxes, crates, baskets, etc., many of the less valuable hard woods and a few of the conifers being used for these purposes.

Oak and maple were the woods most extensively used in the production designed for use in the manufacture of furniture and interior finish. Of the total

quantity of oak veneers, Indiana contributed 31.4 per cent; Michigan, 26.5 per cent; Wisconsin, 12.8 per cent; and Tennessee, 6.9 per cent; while of maple, Michigan contributed 55.2 per cent; New York, 21 per cent; and Wisconsin, 8.1 per cent. Walnut veneers were reported from Illinois and Indiana only, these states furnishing 59.3 per cent and 40.7 per cent, respectively, of the total production. Rosewood and mahogany veneers were manufactured from imported logs, and of the total output New York contributed 71.6 per cent and Massachusetts 12.9 per cent. In the production from gum Illinois was first, with 48.6 per cent of the total, followed by Arkansas and North Carolina, with 29.2 per cent and 5.2 per cent, respectively. North Carolina furnished 22.6 per cent of the poplar veneers reported; Indiana, 17.1 per cent; and West Virginia, 15.2 per cent. Nearly all of the production from basswood and birch was reported from Wisconsin and Maine, these states contributing, respectively, 48.7 per cent and 30.3 per cent of basswood and 68.6 per cent and 27.9 per cent, respectively, of birch. Of the veneers manufactured from elm, 58.8 per cent was reported from Michigan, 17 per cent from Pennsylvania, and 16.9 per cent from Illinois. The entire production from cottonwood, pine, red cedar, and cherry was reported from Missouri, Georgia, Massachusetts, and Illinois, respectively.

PLANING MILLS.

In the planing mill industry rough lumber forms the principal material, with hardware, glass, glue, etc., as other materials; while chief among its products are finished lumber, such as ceiling, flooring, etc., and sash, doors, blinds, and interior finish.

In Table 21 are presented the statistics of planing mills, by states and territories, at the census of 1905.

TABLE 21.—PLANING MILLS—SUMMARY, BY STATES AND TERRITORIES: 1905.

STATE OR TERRITORY.	Number of establishments.	Capital.	SALARIED OFFICIALS, CLERKS, ETC.		WAGE-EARNERS.		Miscellaneous expenses.	Cost of materials used.	Value of products.
			Number.	Salaries.	Average number.	Wages.			
United States.....	9,486	\$222,294,184	9,745	\$9,960,230	132,030	\$66,434,440	\$13,654,313	\$273,276,381	\$404,650,282
Alabama.....	254	3,052,834	113	112,386	2,540	889,327	98,195	5,635,401	7,056,545
Alaska.....	3	14,434	.....	.....	3	3,520	.....	29,265	35,204
Arizona.....	6	209,169	2	3,300	48	38,135	2,992	197,788	279,283
Arkansas.....	200	5,061,983	156	157,902	3,864	1,670,807	172,744	9,883,343	13,811,942
California.....	363	11,064,269	431	500,207	5,528	4,074,386	561,523	11,018,054	18,878,481
Colorado.....	44	564,899	25	28,526	436	309,445	21,115	645,835	1,198,256
Connecticut.....	63	2,489,714	140	136,116	958	592,546	185,146	1,951,278	3,108,674
Delaware.....	28	253,639	9	3,415	210	68,178	8,082	225,917	360,118
District of Columbia.....	6	273,100	18	17,390	271	158,668	19,093	144,399	392,132
Florida.....	118	2,008,477	84	90,520	1,469	583,009	105,061	3,052,741	3,955,049
Georgia.....	249	4,945,551	351	349,046	4,437	1,464,598	339,825	5,810,138	9,305,185
Idaho.....	68	1,129,724	9	12,830	332	211,910	48,869	1,175,490	1,798,498
Illinois.....	299	11,753,039	761	850,379	7,544	4,196,950	1,060,964	12,249,929	20,569,358
Indian Territory.....	12	120,196	8	8,962	64	47,484	10,144	144,514	242,096
Indiana.....	291	4,563,744	301	262,088	2,516	1,244,397	334,886	4,264,354	6,888,293
Iowa.....	93	6,120,955	279	305,625	3,233	1,563,302	468,712	6,352,248	8,931,073
Kansas.....	31	914,367	57	65,487	582	294,445	93,451	868,714	1,508,378
Kentucky.....	180	3,834,844	194	187,475	2,107	868,233	245,040	3,512,780	5,925,942
Louisiana.....	208	6,019,163	120	135,300	4,864	2,244,103	150,510	15,641,408	18,964,263
Maine.....	353	3,327,850	104	77,906	1,549	746,579	234,804	3,318,311	5,042,140
Maryland.....	112	2,597,060	176	144,297	1,505	622,306	214,929	2,401,828	3,817,933
Massachusetts.....	275	5,612,459	309	298,262	3,124	1,947,995	444,407	4,821,169	8,466,136
Michigan.....	380	10,491,626	470	475,408	6,241	2,856,770	682,724	13,468,249	19,292,864
Minnesota.....	192	7,059,814	237	266,231	5,369	2,828,658	423,143	16,797,132	21,407,480
Mississippi.....	188	3,001,774	120	114,128	2,800	1,110,561	131,954	6,901,296	8,614,868
Missouri.....	142	4,979,851	280	309,970	2,912	1,612,898	325,259	4,468,538	7,360,238
Montana.....	27	833,461	11	10,500	243	184,562	13,628	1,227,882	1,618,979
Nebraska.....	23	353,215	32	35,652	345	228,853	25,226	258,283	625,352
Nevada.....	3	199,696	7	9,740	55	41,432	10,344	139,650	225,000
New Hampshire.....	137	1,257,774	42	37,187	948	440,128	65,508	1,487,242	2,278,795
New Jersey.....	129	4,766,179	242	265,101	2,288	1,308,763	280,067	3,726,655	6,211,827
New Mexico.....	13	144,889	2	525	98	56,144	3,101	285,152	389,083
New York.....	874	32,309,660	1,342	1,527,634	15,045	8,333,655	2,812,400	24,581,665	43,502,686
North Carolina.....	370	3,174,422	163	116,001	3,622	1,099,477	130,076	5,259,073	7,914,068
Ohio.....	558	12,416,096	666	655,413	6,116	3,310,862	866,131	12,031,444	19,120,971
Oklahoma.....	11	211,949	14	15,920	85	50,522	26,038	92,904	199,566
Oregon.....	271	3,293,820	85	112,060	2,088	1,355,277	109,311	5,959,798	8,601,546
Pennsylvania.....	757	20,757,401	919	837,276	9,650	5,214,735	1,021,301	14,679,450	24,834,094
Rhode Island.....	19	569,158	37	30,847	301	187,880	62,118	527,531	916,738
South Carolina.....	161	1,618,970	91	66,130	1,735	502,253	61,367	2,628,482	3,577,905
South Dakota ¹	16	148,931	9	7,363	77	48,028	9,969	124,829	234,034
Tennessee.....	215	4,237,609	178	173,591	2,634	1,049,846	143,720	4,848,521	7,299,451
Texas.....	246	4,459,723	89	101,507	3,659	1,687,915	127,618	11,421,995	13,661,919
Utah.....	19	163,057	15	13,990	94	58,331	9,097	88,213	207,576
Vermont.....	316	3,324,245	69	73,735	1,772	722,278	150,934	4,565,545	6,005,157
Virginia.....	186	3,731,364	188	156,191	2,920	1,081,310	208,611	4,638,424	7,204,486
Washington.....	432	7,999,385	221	260,158	4,146	2,555,656	315,766	14,888,504	19,292,886
West Virginia.....	180	2,851,378	126	108,939	1,421	713,998	125,536	3,658,019	5,062,151
Wisconsin.....	353	11,958,884	443	431,614	8,169	3,945,015	691,188	21,133,343	28,389,602
Wyoming.....	14	48,387	.....	.....	13	8,310	1,686	43,658	65,921

¹ Includes 2 establishments in North Dakota.

The statistics shown in Table 21 are for both planing mills operated in connection with sawmills and independent planing mills. The location of the former generally is, like that of sawmills, remote from populous centers, and their product consists chiefly of finished lumber; while the latter is essentially an urban industry, and the character of its product is more varied. Of the total number of establishments, 5,009, or 52.8 per cent, were of the independent type. These mills reported capital to the amount of \$177,145,734, or 79.7 per cent, of the total amount invested in the industry; employed 97,674, or 74 per cent, of the number of wage-earners; paid out \$50,713,607, or 76.3 per cent, of the wages; used \$143,137,662 worth, or 52.4 per cent, of the materials; and turned out a product valued at \$247,441,956, which was 61.1 per cent of the total for the industry.

In number of establishments, cost of materials, and value of products the industry appears to be about evenly divided between the two classes of mills; while by far the larger part of the totals of capital, average number of wage-earners, and wages paid were contributed by the independent mills. This lack of uniformity in the statistics of the two branches of the industry accords with the dissimilarity in the character of their product and the conditions surrounding its manufacture. Aside from the item of machinery, the amount of capital invested in dependent mills is relatively small, while for independent mills, located as they are in towns and cities, the initial cost of the plant site, buildings, and dry kilns is much greater. The product of dependent planing mills consists mainly of dressed lumber, in the production of which manual labor is a relatively small factor, being confined for the

most part to tending the machines, supplying them with materials, and removing the product; whereas in the case of independent mills, the product of which is characterized by greater diversity, a much smaller proportion of the operations can be performed by machinery and the factor of manual labor is accordingly increased.

The average planing mill in the United States at the census of 1905 was substantially larger than in 1900. It reported capital of \$23,434, employed 14 wage-earners, paid out \$7,003 in wages, expended for materials \$28,808, and turned out a product valued at \$42,658; while at the former census the averages

were—for capital, \$14,763; number of wage-earners, 10; amount of wages paid, \$4,497; cost of materials, \$17,839; and value of products, \$27,047. This increase in the capacity of the average plant in the industry was brought about mainly by the increase in the products of the average dependent planing mill—from \$17,940 in 1900 to \$35,115 at the census of 1905—with corresponding increases in the amount of capital invested, average number of wage-earners employed, wages paid, and cost of materials used.

In Table 22 is shown the rank of the principal states in the production of planing mill products at the censuses of 1900 and 1905.

TABLE 22.—PLANING MILLS—RANK OF LEADING STATES IN VALUE OF PRODUCTS, CAPITAL, NUMBER OF ESTABLISHMENTS, NUMBER OF WAGE-EARNERS, AND WAGES: 1905 AND 1900.

STATE.	VALUE OF PRODUCTS.		CAPITAL.		NUMBER OF ESTABLISHMENTS.		WAGE-EARNERS.			
							Average number.		Wages.	
	1905	1900	1905	1900	1905	1900	1905	1900	1905	1900
New York.....	1	1	1	1	1	1	1	1	1	1
Wisconsin.....	2	2	4	4	8	7	3	2	5	3
Pennsylvania.....	3	3	2	2	2	2	2	3	2	2
Minnesota.....	4	5	9	13	21	24	8	7	8	7
Illinois.....	5	7	6	6	11	12	4	5	3	4
Washington.....	6	14	8	19	4	19	11	21	9	16
Michigan.....	7	4	7	3	5	4	5	4	7	5
Ohio.....	8	6	3	5	3	3	6	6	6	6
Louisiana.....	9	16	11	22	19	30	9	14	10	17
California.....	10	9	6	7	7	13	7	11	4	8
Arkansas.....	11	10	13	15	20	21	12	26	13	13
Texas.....	12	12	18	25	17	15	13	16	12	15
Georgia.....	13	17	15	17	16	18	10	10	16	18
Iowa.....	14	8	10	9	32	32	15	8	15	10
Mississippi.....	15	21	27	28	22	25	19	17	20	22
Oregon.....	16	26	24	29	14	20	25	31	17	28
Massachusetts.....	17	11	12	8	13	10	16	13	11	9
North Carolina.....	18	18	25	21	6	5	14	9	21	19
Missouri.....	19	15	14	12	27	27	18	12	14	11
Tennessee.....	20	20	19	18	18	11	20	19	23	20
Virginia.....	21	22	21	20	23	16	17	18	22	21
Alabama.....	22	29	26	32	15	14	21	23	24	30
Indiana.....	23	13	17	11	12	6	22	15	19	14
New Jersey.....	24	19	16	10	29	28	23	20	13	12
Vermont.....	25	23	23	16	10	8	26	24	27	27
Kentucky.....	26	25	20	23	24	22	24	22	25	23
West Virginia.....	27	30	28	30	24	23	31	32	28	33
Maine.....	28	27	22	24	8	9	28	27	26	25

At both censuses New York was first under all the headings of inquiry. The value of its output was at the later census 53.2 per cent greater than that of the state next in rank, and it constituted nearly 11 per cent of the total planing mill product of the United States. The high rank of New York in the planing mill industry is due almost entirely to the magnitude of the operations of its independent planing mills, the value of product of which formed nearly one-sixth of the total for the United States for this class of planing mills and 93.7 per cent for all planing mill products manufactured in the state. Wisconsin, Pennsylvania, and Minnesota show relatively little change in rank. The low rank of Minnesota in number of establishments, compared with its rank in respect to the other items, indicates that the average mill in this state is exceptionally large. In fact the value of product per aver-

age establishment in Minnesota was far above that of any other state and nearly three times the average for the United States. The position of Illinois is noteworthy. Its prominence in the planing mill industry is far above its rank in the lumber industry as a whole, and, as in the case of New York, this is due to the large volume of its independent planing mill operations. While Washington advanced markedly in the planing mill industry, its relatively low rank, as compared with its standing in the lumber industry as a whole, is due to the fact that its planing mill product was confined largely to the output of its dependent mills, which contributed 73.2 per cent of the total for that state. The prominence of Ohio and Massachusetts, like that of New York and Illinois, was due chiefly to the large production of their independent mills.

HISTORICAL AND DESCRIPTIVE.¹

The exploitation of the country's forest resources was one of the earliest occupations to engage the attention of the colonists. In fact, it may be said that the first settler in the New World was also the first American lumberman. The ax preceded the plow. With it the pioneer fashioned the first rough lumber for his cabin and barn and fenced the clearing in which to plant his crops. In the manufacture of these first lumber products the ax was at times supplemented by saws operated by handpower, and as the pioneers increased in number to the point of forming a settlement a division in the process of lumber making occurred. The sawmill appeared and the logging and sawing branches of the lumber industry were differentiated. Authorities differ as to the date and location of the first sawmill in the territory now comprised within the limits of the United States. Some fix it in the extreme southwestern portion of Maine in the year 1623,² while others hold that during this same year wind-driven sawmills were operated by the Dutch at New Amsterdam, and that even prior to this date sawmills were built at Fort George on the Hudson river. However this may be, the permanent establishment of the industry in New England preceded that in New York.

The typical sawmill of colonial times was small, its motive power was water, and like the gristmill, in conjunction with which it was often operated, it was generally to be found in early settlements. It was usually a custom mill, the log owner paying toll to the miller for the sawing and commonly using his lumber product as a medium of exchange between himself and the storekeeper. The equipment of the sawmills of this period ranged in cost from \$60 to \$500, and the product, because of its unwieldy character and the limited transportation facilities, seldom found a market beyond the immediate neighborhood of its manufacture. As the population increased and spread into new territory,

the number of sawmills multiplied, since the lack of adequate means of transportation necessitated the location of a sawmill in practically every community.

The manufacture of lumber on this small scale was characteristic of the industry until near the middle of the nineteenth century. The census of 1840 disclosed 31,650 sawmills in operation in the United States, with an average product of only \$409. With the advent of the railroad era, however, the merchant sawmill, which, rafting its product to nearby markets or to the mouths of rivers for export, had already begun to work a change in the industry, became a transforming factor of increasing importance. Furthermore, as the supply of timber was cut away from the streams, steam as a motive power began to supplant water, and this, together with the introduction of improved equipment, rendered the industry practically independent of place or season. These changing conditions tended naturally toward a concentration into larger plants, where economies in the manufacturing process could be applied. At the census of 1850, while the product of the industry had more than quadrupled in value, only 18,769 sawmills were enumerated. The average product per establishment had thus increased during the decade from \$409 to \$3,219, or almost sevenfold. Since 1850 the lumber industry has continued to grow away from the custom basis on which it had its inception. At the census of 1900 the mills of this type contributed only 2 per cent of the total lumber production of the United States.

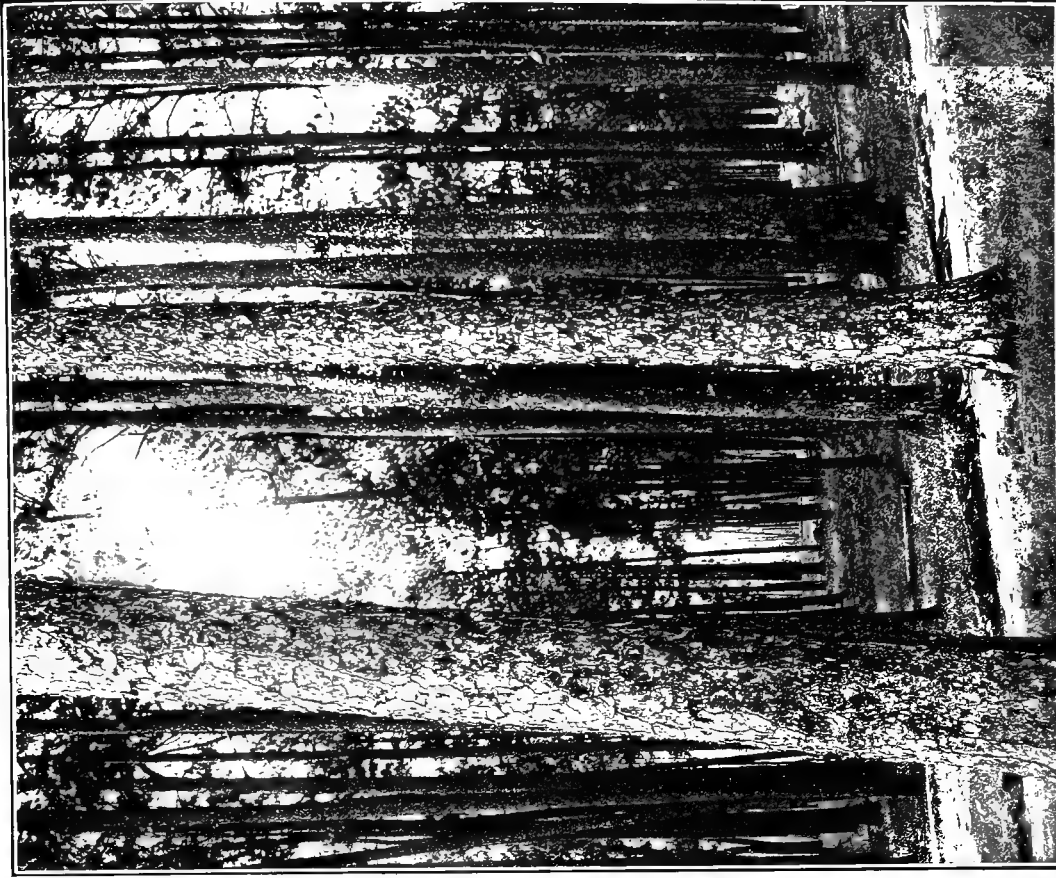
The successive stages in the growth of the lumber industry since it reached a plane of commercial importance roughly accord geographically and chronologically with the expansion and westward trend of the general development of the country. Periods of regional rise and decline in lumber manufacture during the past fifty-five years are traced in their general outlines in Table 23. The four principal lumber regions, having an aggregate output in 1905 of more than four-fifths of the entire product, are covered in the showing. The total product of the industry in the United States is given for each census from 1850 to 1905, inclusive, and the product in each of the four regions and in each state and territory is shown for the same periods.

¹ Among others the following authorities were consulted in the preparation of this chapter: *Engineering*, Vol. VII; "One Hundred Years of American Commerce," by Chauncey M. Depew; "History of the Lumber Industry of America," by J. E. Defebaugh; "A History of the Lumber Industry in the State of New York," by William F. Fox; "North American Sylva," by F. A. Michaux, Vols. I, II, and III; *World's Work*, Vol. VII; *Outlook*, Vol. LXXVI; *Century*, Vol. LXVI; *Cosmopolitan*, Vol. XXXVII; and *International Encyclopedia*, Vols. XI and XV.

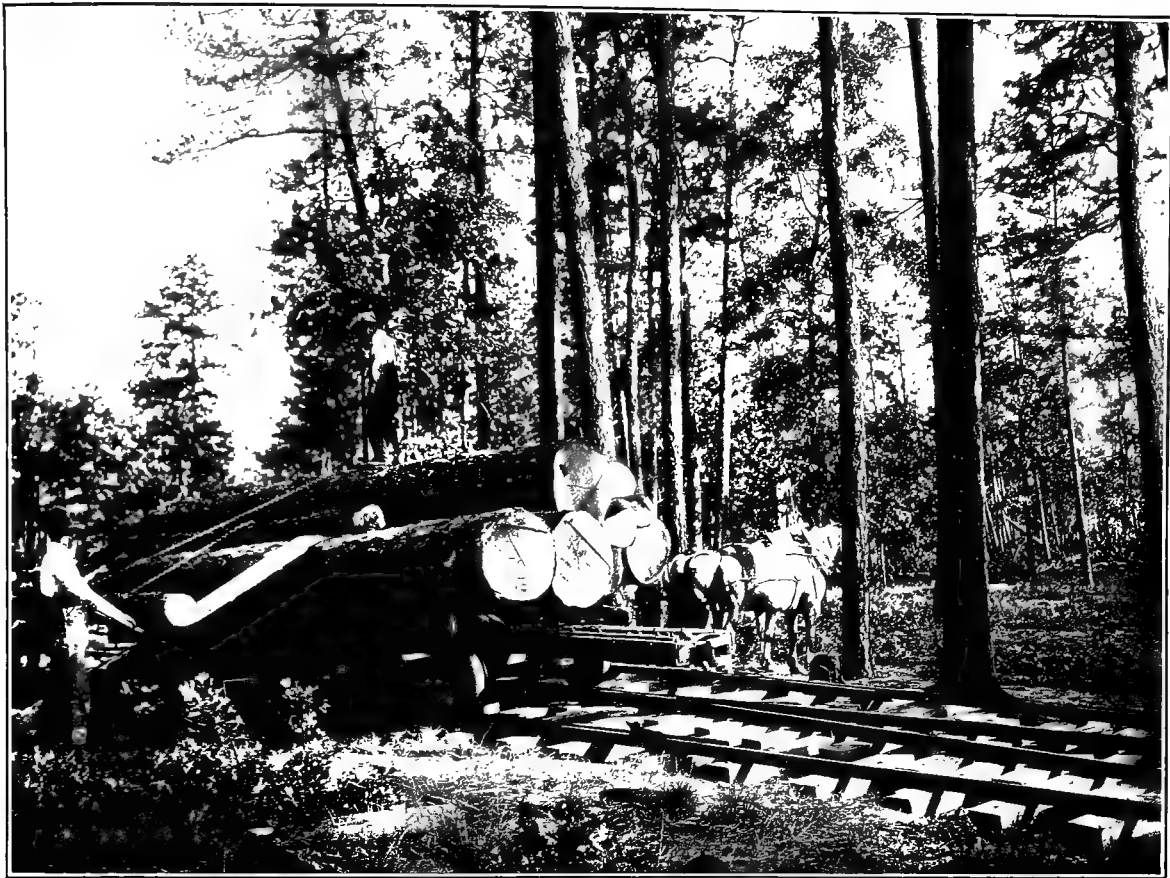
² J. E. Defebaugh, "History of the Lumber Industry of America."



SILVER FIR AND SUGAR PINE, SEQUOIA NATIONAL PARK, CALIFORNIA.



LONG LEAF YELLOW PINE, HORNBECK, LOUISIANA.



LOADING LONG LEAF PINE, PICKERING, LOUISIANA.



LOGGING SCENE IN FLATHEAD COUNTY, MONT., WESTERN YELLOW PINE.

LUMBER AND TIMBER PRODUCTS.

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TABLE 23.—VALUE OF LUMBER PRODUCTS, BY STATES AND TERRITORIES, AND BY GEOGRAPHIC GROUPS:
1850 TO 1905.

	1905	1900	1890	1880	1870	1860	1850
United States.....	\$580,022,690	\$555,197,271	\$437,957,382	\$233,268,729	\$210,159,327	\$96,715,856	\$60,413,187
Northeastern group.....	84,712,823	88,872,287	79,158,889	58,324,883	77,889,748	35,899,708	33,345,485
Maine.....	17,937,683	13,281,561	11,849,654	7,933,868	11,395,747	7,167,762	6,806,295
New Hampshire.....	7,519,431	9,023,574	5,641,445	3,542,012	4,286,142	1,293,706	1,111,854
Vermont.....	5,888,441	5,940,610	6,958,674	3,258,816	3,525,122	928,541	626,015
Massachusetts.....	4,903,714	6,277,729	5,211,607	3,120,184	3,556,870	2,353,153	1,665,575
Rhode Island.....	401,170	222,083	264,625	240,579	257,258	76,114	243,566
Connecticut.....	1,562,254	1,748,881	1,353,544	1,076,455	1,541,038	589,456	545,569
New York.....	13,310,413	15,131,385	17,160,547	14,356,910	21,238,228	10,597,595	13,126,759
Pennsylvania.....	31,642,390	35,031,908	29,087,970	22,457,359	28,938,985	10,994,060	7,859,937
New Jersey.....	1,116,884	1,755,115	1,225,766	1,627,640	2,745,317	1,623,160	1,123,052
Delaware.....	430,443	459,441	405,057	411,060	405,041	276,161	236,863
Lake group.....	118,148,410	154,487,580	169,163,545	77,768,313	51,376,277	13,177,437	3,772,082
Michigan.....	40,509,335	53,915,647	83,121,969	52,449,928	31,946,396	7,303,404	2,464,329
Wisconsin.....	44,395,766	57,882,001	60,966,444	17,952,347	15,130,719	4,616,430	1,249,953
Minnesota.....	33,181,309	42,689,932	25,075,132	7,366,038	4,299,162	1,257,603	57,800
Southern group.....	183,162,380	143,174,089	68,245,808	29,689,305	21,126,970	17,232,458	9,235,665
Maryland.....	2,750,339	2,495,169	1,600,472	1,813,332	1,501,471	609,044	585,168
Virginia.....	13,040,860	11,631,539	5,630,600	3,434,163	2,111,055	2,218,962	1,059,672
North Carolina.....	15,731,379	14,474,281	5,898,742	2,672,796	2,000,243	1,176,013	1,383,310
South Carolina.....	6,791,451	4,942,362	2,146,750	2,031,507	1,197,005	1,125,640	1,125,280
Georgia.....	14,435,563	13,341,160	6,545,195	4,875,310	4,044,375	2,429,196	937,416
Florida.....	10,901,650	10,775,479	5,514,879	3,060,291	2,235,780	1,476,645	391,034
Alabama.....	15,939,814	12,522,423	8,507,971	2,649,634	1,359,083	1,875,628	1,103,481
Mississippi.....	24,035,539	15,286,763	5,770,387	1,920,335	2,160,667	1,832,227	915,997
Louisiana.....	35,192,374	17,294,444	5,745,194	1,764,640	1,212,037	1,575,995	1,145,377
Arkansas.....	28,065,171	24,357,503	8,943,052	1,793,848	1,344,403	1,158,902	122,918
Texas.....	16,278,240	16,052,966	11,942,566	3,673,449	1,754,851	1,754,206	466,012
Pacific group.....	80,332,311	54,261,234	32,775,713	8,194,155	7,548,860	5,887,799	2,314,985
California.....	18,275,891	13,717,785	8,794,655	4,428,950	5,227,064	4,003,431	959,485
Oregon.....	12,483,908	10,257,169	6,530,757	2,040,463	1,014,211	690,008	1,355,500
Washington.....	49,572,512	30,286,280	17,450,301	1,734,742	1,307,585	1,194,360	(1)
All other states.....	113,666,766	114,402,081	88,613,427	59,292,073	52,217,472	24,518,454	11,744,970
Alaska.....	245,380	154,666	58,440	(1)	(1)	(1)	(1)
Arizona.....	960,778	547,790	248,790	215,918	10,000	(1)	(1)
Colorado.....	1,753,791	1,572,329	1,363,749	1,051,295	324,370	(1)	(1)
Idaho.....	2,834,506	908,670	631,790	349,635	56,850	(1)	(1)
Illinois.....	7,081,470	7,190,114	5,135,155	5,063,037	4,546,769	2,681,295	1,374,798
Indian Territory.....	588,078	189,373	41,950	(1)	(1)	(1)	(1)
Indiana.....	14,559,662	19,979,971	20,278,023	14,260,830	12,324,755	4,452,114	2,213,797
Iowa.....	5,610,772	8,487,261	12,056,302	6,185,628	5,794,285	2,185,206	470,760
Kansas.....	20,700	79,581	85,521	682,697	1,736,381	1,563,487	(1)
Kentucky.....	14,539,000	13,338,533	7,904,428	4,064,361	3,662,086	2,495,820	1,502,434
Missouri.....	10,903,783	10,540,590	8,359,925	5,265,617	6,363,112	3,085,026	1,479,124
Montana.....	3,024,674	2,846,268	1,182,510	527,695	430,957	(1)	(1)
Nebraska.....	19,624	37,390	154,945	265,062	278,205	335,340	(1)
New Mexico.....	1,315,364	402,005	389,761	173,930	121,225	45,150	20,000
Ohio.....	12,567,992	19,780,337	15,279,843	13,864,460	10,235,180	5,279,883	3,916,060
Oklahoma.....	292,933	261,491	27,260	(2)	(2)	(2)	(2)
South Dakota.....	275,190	447,061	451,882	435,792	572,280	(2)	(2)
Tennessee.....	21,580,120	16,709,104	9,073,686	3,744,905	3,390,687	2,228,503	725,387
Utah.....	133,044	186,905	249,940	375,164	661,431	145,505	14,620
West Virginia.....	14,933,472	10,190,118	5,515,065	2,431,857	1,478,399	(1)	(1)
Wyoming.....	426,433	729,524	124,462	40,990	268,000	(1)	(1)
District of Columbia.....	(1)	(1)	(1)	50,000	30,000	21,125	27,990
Nevada.....	(6)	(6)	(1)	243,200	432,500	(1)	(1)

¹ None reported.
² Includes Nevada.

³ Part of Indian Territory prior to 1890.
⁴ Includes North Dakota.

⁵ Dakota territory.
⁶ Included with Oklahoma.

It is characteristic of the lumber industry that the locality of its raw material practically determines the point of its manufacture. The ever-widening circle of the demand for lumber and the constant and rapid decrease in the supply of merchantable timber have been the controlling causes of the migratory movements disclosed in Table 23.

Prior to 1850 the bulk of the lumber product of the United States was manufactured in its northeastern portion. Down to 1860 the supremacy of this section in the industry had not been seriously threatened, and even in 1870 it retained the first rank in lumber production. A sharp contraction in the value of its output was experienced, however, during the following decade. The actual shrinkage from 1870 to 1880 was \$19,564,865, or 25.1 per cent, the product declin-

ing in relative importance from 37.1 to 25 per cent of the output of the country. A substantial gain of \$20,834,006 over 1880 in the value of its product was again recorded in 1890, an increase of 35.7 per cent, which, however, was due as much to appreciation of values as to increase in quantity. Largely owing to the same cause the actual value of the output of this section has not changed materially since 1890, though its relative contribution to the total product of the country has diminished steadily from 18.1 per cent in 1890 to 16 per cent in 1900 and 14.6 per cent in 1905.

The exploitation of the white pine forests of the Lake states, which commenced about 1850, had by 1860 attained a scale of marked importance, and during the decade 1860 to 1870 occurred the greatest relative growth in the operations of this region. In

1880 the Lake states assumed the first place, with a product valued at \$77,768,313, or 33.3 per cent of the total output of the United States. The development of the industry in this region had been phenomenal, its product having multiplied between 1860 and 1880 almost six times, and between 1850 and 1880 more than twenty times. Its greatest actual increase, however, was not recorded until ten years later, when its output rose to \$169,163,545, or 38.6 per cent of the product of the country, a gain in the decade for these states of \$91,395,232, or 117.5 per cent, the largest absolute increase made by any of the groups for any census period. Though retaining first place in the industry at the census of 1900, with a product valued at \$154,487,580, these states had nevertheless passed their point of heaviest relative as well as actual production, their output having declined between 1890 and 1900 from 38.6 per cent to 27.8 per cent of the lumber product. In 1905 it had still further decreased to 20.4 per cent of the total.

The Southern states were the leading lumber producers at the census of 1905, with an output valued at \$183,162,380, or 31.6 per cent of the total for the United States. The industry in these states is an old one. In 1850 they contributed more than one-seventh of the total lumber product of the country, and a steady growth in this section is shown at each succeeding census. Prior to 1880, however, its influence on the lumber market of the country was relatively unimportant. The wane of the industry in the Lake region lent additional stimulus to its development in the Southern states, and the largest percentage of increase shown for this section for any census period was that for the decade 1880 to 1890, when the value of products increased \$38,556,503, or 129.9 per cent. During the succeeding ten years its output grew from \$68,245,808 to \$143,174,089, or 109.8 per cent. These states increased their lumber product from 1900 to 1905 by \$39,988,291, or 27.9 per cent, and present conditions indicate that their maximum output has not yet been reached.

Beyond the volume of business resulting from mining activity, as disclosed by the census of 1850, the industry made little headway in the Pacific Coast states during the next three census periods. By 1880, however, it was demonstrated that the lumber products of this region could be delivered at a profit to the markets of the middle West and even to those of the Atlantic seaboard. This marked the beginning of the lumber industry on a large commercial scale in these states. Between 1880 and 1890 the value of the output of the mills of this region almost quadrupled. From 1890 to 1900 it grew from \$32,775,713 to \$54,261,234, a gain of \$21,485,521, or 65.6 per cent; and in 1905 it rose to \$80,332,311, an increase for the five years of \$16,071,077, or 29.6 per cent. This region is fast becoming a center of great activity in

lumber manufacture. While in point of value its contribution to the total output of the United States at the census of 1905 was only 13.8 per cent, in view of the rapid diminution of the supply of merchantable timber in other sections it is probable that the relative importance of these states in the lumber production of the country will increase greatly.

As a measure of the enormous growth in the lumber industry in the United States during the comparatively brief period covered by Table 23, it is interesting to note that at the census of 1905 the production of the Southern group of states alone was nearly four-fifths as great as the lumber product of the entire country in 1880, about equal to that of 1870, nearly double the total for 1860, and more than three times the output of 1850.

LOGGING.

Logging was a simple operation in the early days of merchant milling, when the timber stood close around the mill and the logs could be readily drawn or "snaked" to it. Moreover, the old-fashioned mill, with its limited capacity, required little timber to stock it, and often several years would elapse before the haul became too long to be profitable. When this point was reached, the mill was moved to a new site, where the cutting out was repeated. A reversal of this process followed, however, when the mills increased in size and cost and their location necessarily became more permanent. Logging operations multiplied as the distance from stump to mill increased. Improved methods and implements were introduced as new obstacles were encountered and overcome, and out of the growing difficulties and constantly changing conditions has been evolved the complicated but highly systematized logging industry of the present day.

While the systems of logging used in different localities vary with the size and character of the timber and the nature of the country, they are in many respects similar. Logging is conducted in the Northeastern and the Lake states chiefly during the fall and winter months, in order to take advantage of the snow and ice for transporting and of the swollen rivers in the early spring for driving. On the Pacific coast, where the methods employed, except in the mountain regions of California, are not influenced materially by climatic conditions, the operations proceed without material change in volume throughout the year, while in the Southern states logging in all its branches is carried on in all seasons.

The general conditions in the industry in the Northeastern and the Lake states are very similar. In a typical camp in these regions the felling of the trees begins in the early fall and continues until the winter sets in. After they are felled the trees are trimmed of their branches, cut into advantageous lengths, generally from 12 to 20 feet, and "tonged out" or snaked



STEAM LOG LOADER, FLAGSTAFF, ARIZONA.



LOG TRAINS OF REDWOOD, HUMBOLDT COUNTY, CALIFORNIA.

by horses and chain to the skidways, where they are piled into high tiers on the skids ready to be loaded upon sleighs when the snow comes. While on the skids the logs are measured, or "scaled," and their contents in board feet recorded by the scaler, after which a man stamps with a marking hammer on both ends of the logs the mark of the owner.

On the approach of cold weather the main logging road leading from the woods to the banking ground on the river or to the railroad is laid out to a width of about 20 feet. The grade is kept in favor of the loaded sleigh as much as possible, and, where practicable, the road is laid out over swamp lands. The length of the log road does not generally exceed 5 miles, though occasionally the haul is as great as 10 or 12 miles. In sections where the timber is too remotely situated to allow of sleighing directly to the river or mill a light temporary railroad is projected into the area to be cut. From the main track spurs are run out into the timber. The construction and maintenance of log or sled roads involves a heavy outlay, since over much of their course, especially through swamp lands, they are "corduroyed" or floored with small logs laid crosswise. Bridges are constructed across small streams, and along the hillsides the roads are dug out or graded to a level. During the day men are constantly at work leveling irregularities, and at night when the weather is cold enough to freeze, the roads are sprinkled from a large water tank drawn on a sleigh until a good ice bottom is formed, while on the steep grades sand and gravel are thickly spread to retard the speed of the loaded sleighs. Over this "boulevard" of ice the sleigh with its load of logs, weighing from 4 to 7 tons, can be drawn easily by a single team.

The transportation of the logs from the woods to the banking ground or railroad is continued throughout the winter, until the melting of the ice on the road puts a stop to the work. The logs are banked along the river in large piles in such a way as to be easily rolled into the water, or they are unloaded from the sleighs directly on the frozen surface of the river and remain there until the breaking of the ice in spring, when they are floated or driven down the river to the mill. When the logs reach the mill they are caught by a boom stretched across the river and turned into pockets, or log ponds. The rivers being common highways, logs from many different camps are frequently caught by the mill booms, where each owner in turn sorts and runs into a pocket those bearing his mark, while the others are allowed to pass.

In the Lake states, to a much greater extent than in New England and the Adirondacks, steam appliances have supplanted horses and oxen in performing certain of the operations in the woods. Where logging railroads are used the logs are sometimes drawn out of the woods to the track and loaded on the cars by steam. For this work complicated machines, called "steam

skidders," are used. These are fitted with 2,000-foot wire cables and are so constructed that they move along the track, stopping at intervals to thrust their long tentacles out into the timber in every direction and snake in the heavy sticks. The end of the cable is dragged out to the logs by being attached to the harness of a horse. It is fastened to the end of the log by heavy grabs, so constructed as to prevent the end of the log from becoming caught by obstacles in its path. The machine has a steam crane for lifting the logs to the trucks. Logging railroads have become a necessity in both these regions since lumbering in them began to shift from conifers to hard woods, the greater weight of the latter making river driving impracticable.

In the yellow pine and hard wood districts of the Southern states but little river driving is done. Logging railroads are used almost exclusively in transporting the logs to the mills, and the methods employed are similar to those used in the Lake states. Although logging by rail is a more expensive method than river driving, it possesses the advantage of making the industry practically independent of weather conditions, and thus insures a steady supply of logs, a consideration of paramount importance in a large modern mill.

The substantial increase in the output of cypress lumber in recent years is due largely to the marked improvement in the methods and equipment employed in getting the timber to the mills. One of the most effective of the many ingenious appliances used in logging cypress is the pull boat employed where conditions do not permit of the use of logging railroads and steam skidders. In principle and construction this machine is similar to the steam skidder described above, except that the operations are conducted from a heavy flatboat anchored near the edge of a lake or river, the logs being dragged by means of the wire cables for a distance of one-half mile or more through the marshes to open water.

Logging in the Pacific Coast states, where the timber grows to enormous size, necessitates the employment of methods very different in some respects from those used in other parts of the country. The felling and cutting of the trees into lengths are effected in a way similar to that followed in other lumbering regions, the ax, crosscut saw, and wedge being the tools used. Before the log is started on its way to the mill the bark is chopped from the side on which it is to be dragged. Horses and oxen, still commonly used in eastern camps and formerly employed to move the logs in the camps of these states, have been almost entirely supplanted by steam appliances. Here the donkey engine, a modification of the steam skidder, furnishes the motive power for moving the heavy sticks. It consists of a small upright engine fitted with a drum or capstan on which is wound a steel wire cable from one-half inch to an inch in thickness and from 500 to 3,000 feet in

length. Skid roads are constructed at heavy expense to facilitate the handling of the logs. To reduce the friction of the sliding timber, these roadways are frequently corduroyed with small logs laid at intervals of 2 or 3 feet. The yarding engine drags the log from the place of fall to the skid road leading out from the cutting area. The cable from the landing engine is then fastened to the log, which is dragged swiftly over the skid road to either the mill, the nearest stream where the logs are made into rafts and floated to the mill, or the branch railway landing. Nothing but the breaking of the cable can stop the progress of the log. Turns in the road are made by running the cable over blocks fastened to trees and stumps. When these are reached the hook tender signals, the engine stops until the block is removed, and the log then resumes its journey. The cable from the landing engine is drawn back to the yarding engine by a smaller cable, which trails after the log. Where the length of the haul requires it, several landing engines are placed at intervals along the skid road, and each in turn drags the log the length of its cable. Sometimes the logs are fastened end to end in long strings and dragged over the skid road as though one stick. The same engines are utilized in loading the cars where logging railroads are used. A block is suspended above the car, and over it is passed a cable with heavy hooks on the end. The hooks are fastened in the log, and as the cable is reeled the log is drawn on an incline from the landing to the car. Men guide the logs with iron-shod poles.

In some parts of the mountainous regions of California, where the size of the timber and the extremely unfavorable conditions render logging impracticable, the process of stocking the mill is reversed. The mill is located in the heart of the mountains and its finished product is conveyed to the outside world through flumes, sometimes 60 miles in length.

SAWMILLS.

The modern sawmill plant, with its numerous devices to supplant manual labor through mechanical appliances which bring the ponderous material to the saw and carry the finished product to the yard, is essentially a product of American inventive genius.

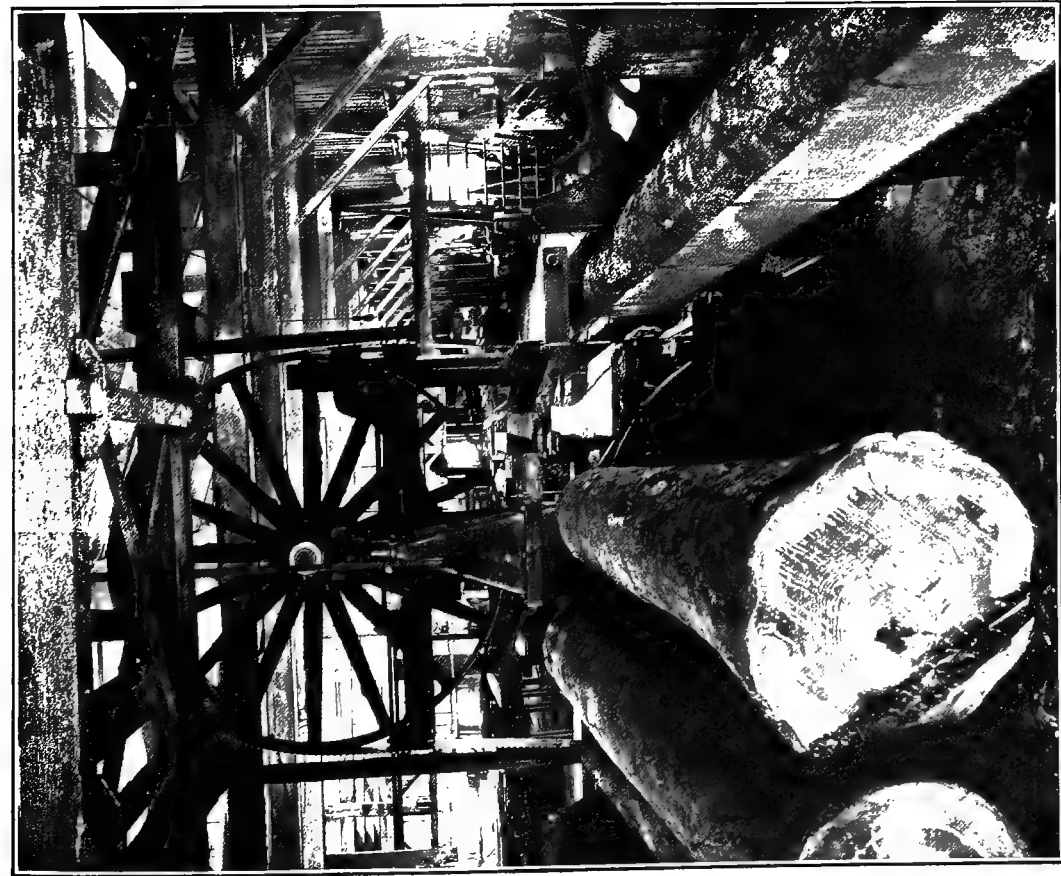
The first sawmills used in the colonies were imported from Holland. These mills were of the type known as sash sawmills and consisted of a straight band of steel, properly toothed, and strained taut by means of a frame, or sash, into which it was fitted. The frame was pulled downward by a water wheel, which supplied the motive power, and pulled back by means of a large elastic pole. The next step in the evolution of the sawmill was the introduction of the type known as the muley sawmill. The saw itself in this type of mill also consisted of a toothed band of steel, but it was differently mounted, much of the weight and cumbersome of the reciprocating parts in the former type being done away with in the latter.

The sash and muley sawmills were the prevailing types in use until about the middle of the nineteenth century, although the circular or rotary saw, the next innovation, made its appearance in the United States early in the century. This type of saw, which originated in Europe, consists of a circular disk of steel with teeth around its rim. In the principle that the cutting movement was continuous it was a radical departure from the sash and muley types, with their vertical reciprocating movement by which substantially one-half of the operating time was lost in the recovery of the saw for its next downward stroke.

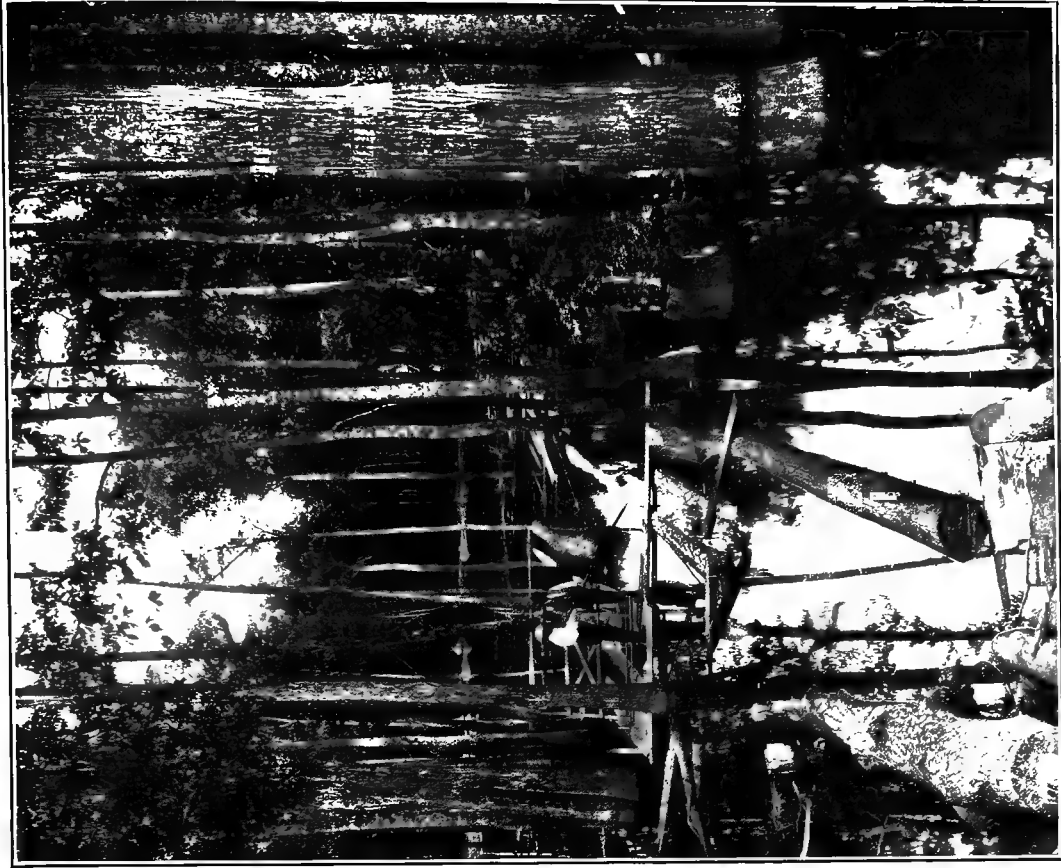
The band saw, the latest and most effective type of log sawing machinery, was first employed in cutting hard wood lumber in the Maumee valley of Ohio in 1872. This type consists of a frame, or standard, carrying two wheels, mounted one above the other, over which a continuous band of steel works exactly like a belt between two pulleys. This steel band is the saw, and in its operation, as in that of the circular saw, the cutting process is continuous. The band saw is sometimes toothed on both edges so that a board is cut from the log at both the forward and backward movements of the carriage.

A type extensively used in modern mills, as a rule in a supplemental capacity to the band saw or circular saw, is the gang saw. In principle it is the old sash mill, with its vertical reciprocating movement, but with its single saw replaced by a gang of such saws, ranging in number up to ten, or sometimes more. These saws are fixed side by side in an iron frame, and the distance between them is adjusted according to the thickness of the boards into which the log is to be cut. The log is slabbed off on two sides or squared by the band saw or circular saw and then delivered to the gang saw, where with one passage it is converted into boards.

In a typical modern sawmill plant the manufacturing process is conducted in the second story of the building. The log is drawn from a pond up an incline to the mill floor by an endless chain device called "the bull chain," which is operated by steam and stopped and started by levers. The log is first deposited on a platform parallel with and slightly above the level of the carriage, onto which it is rolled. It is placed in the exact position desired and made fast by setting works, consisting of head blocks and dogs operated by steam and controlled by levers. If it is desired to turn the log on the carriage because of crooks or other defects or after one side has been slabbed off, the operation is performed by a device known as the "nigger," which, operated by steam and controlled by levers, plunges up from underneath and, striking with great force, tosses and turns the log on the carriage until it lies in the desired position. When the log is in place, the carriage, which is operated by steam, passes alongside of the saw, and a slab or board is cut off. The carriage then returns at a high rate of speed to the



LOG GOING THROUGH MILL, BERKELEY, NORTH CAROLINA.



LUMBERING CYPRESS, TELFAIR COUNTY, GEORGIA.

starting point, and the movement is repeated. If, however, a double band saw, one cutting at both edges, is used, the log is moved up according to the thickness of the cut, and another board is sawed off on the return of the carriage.

The movements of the log on the carriage and those of the carriage itself, which are effected by steam, are controlled by levers manipulated by the sawyer, while the devices which fix and hold the log in place are operated by levers in the hands of the dogger man, who rides on the carriage. Mechanical carriers take the boards and refuse from the saws. The boards are conveyed to the edger saw, which cuts their rough edges to a commercial shape. Without halting in their course they are carried to the trimmer, which, with its complicated system of levers and lift or drop saws, cuts off the uneven ends and reduces them to standard lengths. The boards, still without a stop in the operation, are then carried out to the yard. Slabs containing sufficient material are taken from the carrier at a convenient point where a small circular saw is located, and are cut into proper lengths for lath and shingle material, and then passed on to be converted into these products. The time consumed in the passage of a log of average size from the pond to the yard and its conversion into commercial lumber seldom exceeds three minutes.

FOREIGN TRADE.

Exports.—Forest products were with furs the first and only commodities exported by the colonies in the early years of their history. The bulk of the forest products exported went to England and her other colonies, for sawmills were not operated in England until many years after their introduction into America. Data relating to the kinds and quantities of lumber exports during this period and during the early years of the Republic, while fragmentary, reveal foreign trade in these commodities of considerable volume. In 1675¹ a cargo of lumber, valued at £400 sterling, was shipped from New York to England. Shipbuilding material from the start formed a large part of the exports of forest products. Soon after the establishment of the colonies, England realized the value of their forests as a source of materials for her shipbuilding industry and became solicitous for the preservation of them. "In 1711 and 1721 severe ordinances were enacted, prohibiting the cutting of any trees proper for masts on the possessions of the crown."²

The magnitude of the export trade of the United States in forest products at the beginning of the nineteenth century, as well as the varied character of the commodities handled and the wide distribution of the industry of their production, are indicated by the following extracts:

In a table of importation from the United States presented to the Parliament of Great Britain, the timber introduced in 1807 is reckoned at 1,302,980 dollars, of which I suppose the white pine to have formed a fifth. * * * In this statement the wood imported from New Brunswick is not included, nor the vast quantity sent from the United States to the West India Islands not dependent on Great Britain.³

White-oak staves are exported from all the ports of the Northern and Middle states, and from New Orleans. Those which come from Baltimore, Norfolk, and New Orleans are far superior to those of the Northern states; the difference results naturally from that of the soil and climate. The quantity of oak staves exported to England and the West Indies appears, by two official documents that I have examined, to be considerable. In 1808 the value received by England amounted to more than 146,000 dollars, and the number of staves sent to the West Indies exceeded 53 millions. I am unable to fix the proportion of the two species of white and of red oak; probably more of the first are sent to England, and of the second to the Colonies.⁴

The long-leaved pine is the only species exported from the Southern states to the West Indies. A numerous fleet of small vessels is employed in this traffic, particularly from Wilmington in North Carolina and Savannah in Georgia. The stuff destined for the Colonial market is cut into every form required in the construction of houses and of vessels; what is sent to England is in planks from 15 to 30 feet long and 10 or 12 inches broad; they are called ranging timbers, and are sold at 8 or 10 dollars a hundred cubic feet. The vessels freighted with this timber repair chiefly to Liverpool, where it is said to be employed in the building of ships and of wet docks; it is called Georgia pitch pine, and is sold 25 or 30 per cent higher than any other pine imported from the United States.⁵

The yellow pine, in boards from an inch to two inches and a half thick, forms a considerable article of exportation to the West Indies and Great Britain. In the advertisements of Liverpool it is designated by the name of New York pine, and in those of Jamaica by that of yellow pine; in both places it is sold at a lower price than the long-leaved pine of the Southern states, but much higher than the white pine.⁶

After the formation of the Republic, markets for the surplus lumber products of the United States multiplied until at the present time these commodities are shipped to practically every civilized country of the world, though England still remains the principal purchaser. The value of the unmanufactured wood exported to the leading countries in 1905 is shown in Table 24, which also gives the percentage which the value of exports to each country formed of the total value exported.

¹ William F. Fox, "A History of the Lumber Industry in the State of New York," page 14.

² F. A. Michaux, "North American Sylva," Vol. III, pages 164 and 165.

³ Ibid., Vol. III, page 171.

⁴ Ibid., Vol. I, pages 23 and 24.

⁵ Ibid., Vol. III, pages 137 and 138.

⁶ Ibid., Vol. III, page 123.

TABLE 24.—Exports of unmanufactured wood, by countries: 1905.¹

COUNTRY.	EXPORTS OF UNMANUFACTURED WOODS.	
	Value.	Per cent of total.
Total.....	\$45,439,347	100.0
United Kingdom.....	11,142,577	24.5
Dominion of Canada.....	5,307,841	11.7
South America.....	5,288,090	11.6
Netherlands.....	3,640,062	8.0
Mexico.....	3,199,649	7.0
Germany.....	3,035,959	6.7
West Indies.....	2,808,342	6.2
France.....	2,183,183	4.8
Oceania.....	1,704,816	3.8
Africa.....	1,340,887	3.0
Italy.....	1,335,859	2.9
Central America.....	872,527	1.9
Asia.....	851,370	1.9
All other countries.....	2,728,185	6.0

¹ Bureau of Statistics, Department of Commerce and Labor, "Commerce and Navigation of the United States."

Table 25 shows the value of unmanufactured wood exported from the United States from 1870 to 1905.

TABLE 25.—Exports of unmanufactured wood, by value: 1870 to 1905.¹

YEAR.	Value.	YEAR.	Value.
1905.....	\$45,439,347	1887.....	\$15,025,879
1904.....	52,447,305	1886.....	15,934,547
1903.....	44,672,284	1885.....	16,683,827
1902.....	36,162,158	1884.....	18,925,408
1901.....	41,345,942	1883.....	20,948,624
1900.....	39,365,578	1882.....	18,314,421
1899.....	31,774,241	1881.....	14,150,147
1898.....	28,415,033	1880.....	12,261,682
1897.....	31,032,384	1879.....	11,616,360
1896.....	24,520,633	1878.....	12,653,168
1895.....	20,866,100	1877.....	14,785,836
1894.....	20,938,445	1876.....	13,463,422
1893.....	20,607,543	1875.....	13,686,715
1892.....	19,727,782	1874.....	17,362,767
1891.....	20,282,718	1873.....	15,663,162
1890.....	21,764,884	1872.....	12,265,682
1889.....	20,760,391	1871.....	10,515,795
1888.....	17,806,981	1870.....	11,121,123

¹ Bureau of Statistics, Department of Commerce and Labor, "Commerce and Navigation of the United States."

The bulk of the lumber product of the United States is consumed at home. The exports of unmanufactured woods, however, have increased in value rapidly during recent years, and the percentage of the total production disposed of in this way is becoming important. In 1870 the exports constituted 5.3 per cent of the total lumber production, and the proportion had not materially changed in 1880 and 1890, being 5.3 and 5 per cent, respectively. In 1900, however, the quantity exported formed 7.1 per cent of the total production, and in 1905, 7.8 per cent. The most marked increase appears in the exports to Europe, which in 1895 amounted to only \$12,033,442, and in 1905 to \$23,955,225, an increase of 99.1 per cent. A segregation of these totals shows that the exports of unmanufactured woods to the United Kingdom rose from \$6,147,493 in 1895 to \$11,142,577 in 1905, an increase of \$4,995,084, or 81.3 per cent; to Germany, from \$1,562,077 to \$3,035,959, an increase of \$1,473,882, or 94.4 per cent; to the Netherlands, from \$943,029 to \$3,640,062, an increase of \$2,697,033,

or 286 per cent; to Belgium, from \$412,314 to \$1,170,838, an increase of \$758,524, or 184 per cent; and to France, from \$892,042 to \$2,183,183, an increase of \$1,291,141, or 144.7 per cent.

The percentage that the exports of unmanufactured woods formed of all exports, except for 1880, has shown little variation. In 1870 they formed 2.2 per cent of the total; in 1880, 1.5 per cent; in 1890, 2.6 per cent; in 1900, 2.9 per cent; and in 1905, 3 per cent.

Imports.—Until the middle of the nineteenth century the imports of unmanufactured wood consisted almost wholly of the cabinet woods in the log, mahogany chiefly, with rosewood, granadilla, lancewood, cedar, ebony, and satinwood in smaller quantities. Since 1870 the cabinet woods have been on the free list, and prior to that time an import duty was levied on them only during comparatively short periods. The bulk of these woods imported into the United States is supplied now, as formerly, by the forests of Haiti, Santo Domingo, Cuba, Porto Rico, other West Indies, Mexico, British Honduras, and Central American states.

In Table 26 are shown the imports of cabinet woods from 1895 to 1905.

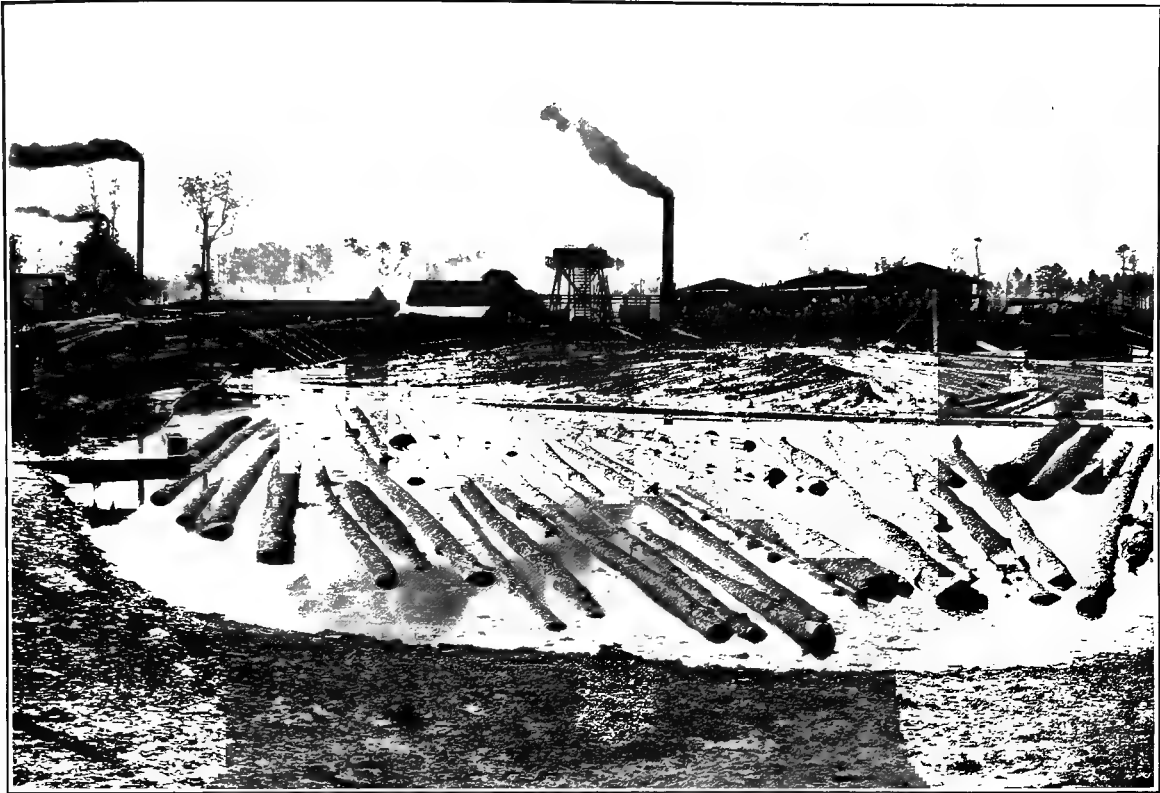
TABLE 26.—Imports of cabinet woods, by kind and value: 1895 to 1905.¹

YEAR.	Total value.	MAHOGANY.		All other (value).
		Quantity (M feet B. M.).	Value.	
1905.....	\$3,055,617	31,844	\$1,977,894	\$1,077,723
1904.....	4,124,611	50,370	2,690,382	1,434,229
1903.....	4,035,300	48,387	2,783,679	1,251,621
1902.....	3,361,275	44,795	2,361,483	999,792
1901.....	2,993,349	32,281	1,752,612	1,240,737
1900.....	2,430,702	28,228	1,572,269	858,433
1899.....	2,091,277	24,714	1,244,921	846,356
1898.....	1,699,336	14,679	799,149	900,187
1897.....	1,201,466	15,129	656,976	544,490
1896.....	1,699,166	17,367	813,063	886,103
1895.....	1,245,203	11,554	579,473	665,730

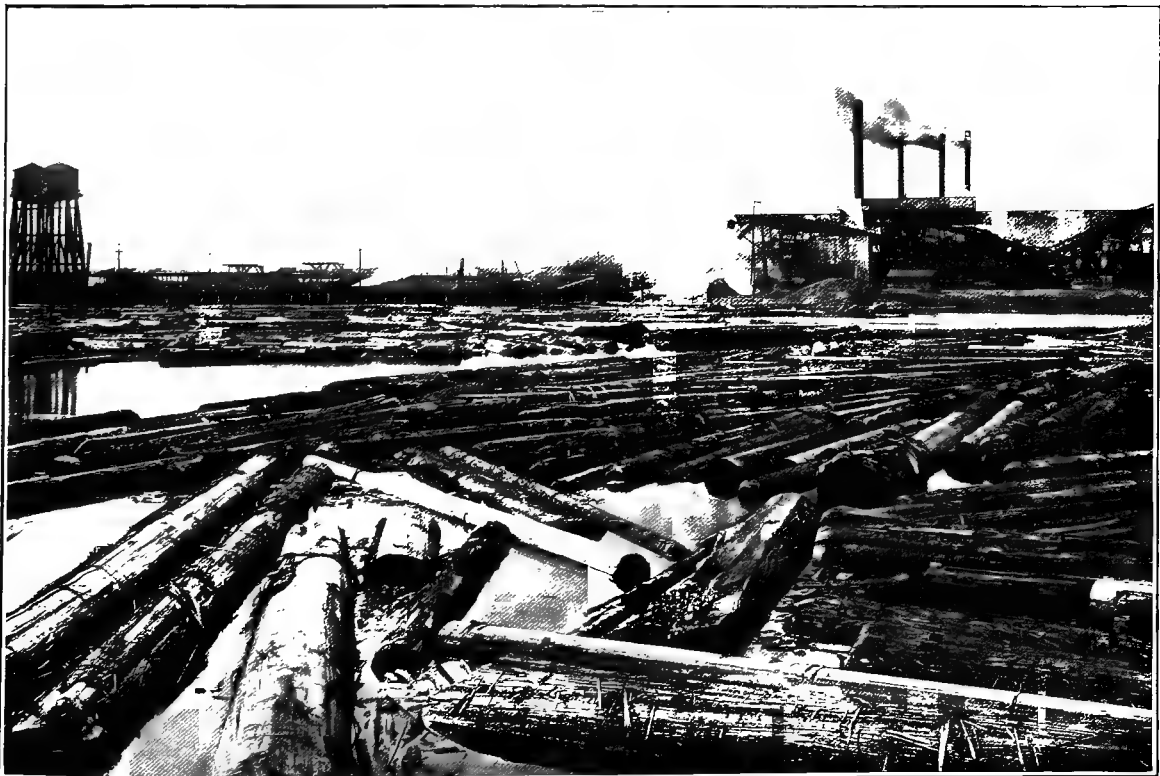
¹ Bureau of Statistics, Department of Commerce and Labor, "Commerce and Navigation of the United States."

For many years the bulk of these woods was shipped from the forests where cut to the ports of the United Kingdom, and from there distributed to the markets of the world. This practice is still followed in a measure, especially with African mahogany. Of the total value of cabinet woods imported into the United States in 1905, the United Kingdom contributed \$928,248; Central American states, \$590,070; the West Indies, \$589,553; Mexico, \$442,719; and all other countries, \$505,027.

When the timber supply, especially white pine, of the Northeastern states began to be exhausted the forests of Canada were drawn upon. The imports of unmanufactured wood products from this source, however, did not attain a volume of relative importance until after 1850.



LOG POND AND MILL, OCILLA, GEORGIA.



CEDAR POND AND MILL, TACOMA, WASHINGTON.

Under the treaty of 1854 with Canada, which provided for free trade in all natural products, pine logs, rough pine lumber, and all other unmanufactured wood products imported from Canada were put on the free list. Since 1846 pine logs had been admitted under an *ad valorem* duty of 30 per cent and rough pine lumber under a duty of 20 per cent. The treaty went into effect on March 15, 1855, and was maintained until March 17, 1866, when the balance of trade having been changed against the United States, the treaty was terminated and a duty of 20 per cent placed on imports. By the act of July 14, 1870, Congress removed this duty on pine logs, and since that time all logs have been on the free list. No change, however, was made by this act in the duty on rough lumber and other sawed and hewn products.

In 1872 a specific tariff was for the first time placed on lumber. This duty amounted to \$1 per thousand feet on whitewood, hemlock, and sycamore, and \$2 on white pine and other varieties. From the enactment of this law there was no change in the tariff legislation with respect to logs and rough lumber, with the exception of an additional tax placed on dressed lumber, until the McKinley tariff went into effect in October, 1890. The growing scarcity of timber on the American side of Lakes Huron and Erie while immense forests were within easy reach on the Canadian side, had made the question of import tariff rates on logs and lumber one of vital significance to the lumber manufacturers in that region. After the placing in 1872 of the specific tariff of \$2 per thousand feet on white pine lumber imported into the United States, the Canadian government placed an export duty on logs, which practically shut off from the mills along the border on the American side the supply of material from Canada. By the McKinley tariff the duty on white pine lumber was reduced from \$2 to \$1, under a tacit agreement with the Canadian authorities that their export duty on logs should be abolished. While the shipments of lumber into the United States were not materially affected, the importation of logs from Canada increased rapidly from the passage of this law until 1898. The Wilson tariff, which went into effect on August 28, 1894, placed rough lumber and other wood products on the same basis as logs, namely, on the free list, and this arrangement obtained until July 24, 1897, when the Dingley tariff became a law. By this act the duties of \$2 per thousand feet on white pine lumber and of \$1 on sycamore, basswood, and whitewood, originally imposed in 1872, were restored. This was followed, as before, by retaliatory legislation on the part of Canada, which practically put a stop to the importation of logs from that country into the United States. No changes in the tariff schedules respecting unmanufactured woods have been made since the Dingley tariff went into effect.

In Table 27 is shown the value of unmanufactured wood imported into the United States from 1871 to 1905, the bulk of which came from the Dominion of Canada.

TABLE 27.—Imports of unmanufactured woods: 1871 to 1905.¹

YEAR.	Value.	YEAR.	Value.
1905.....	\$22,047,054	1887.....	\$11,425,330
1904.....	20,489,432	1886.....	10,907,201
1903.....	22,257,849	1885.....	11,276,427
1902.....	19,620,812	1884.....	13,220,559
1901.....	15,605,049	1883.....	13,167,108
1900.....	15,837,342	1882.....	12,910,019
1899.....	11,883,173	1881.....	10,281,636
1898.....	11,541,370	1880.....	8,413,161
1897.....	17,709,060	1879.....	5,333,277
1896.....	17,048,557	1878.....	4,904,489
1895.....	14,690,416	1877.....	4,684,649
1894.....	14,347,420	1876.....	5,420,432
1893.....	17,512,190	1875.....	6,997,008
1892.....	15,288,578	1874.....	10,006,108
1891.....	15,437,120	1873.....	12,171,853
1890.....	13,561,788	1872.....	9,461,680
1889.....	14,066,141	1871.....	9,146,500
1888.....	13,084,426		

¹ Bureau of Statistics, Department of Commerce and Labor, "Commerce and Navigation of the United States."

Table 28 shows the quantity and value of logs and round timber imported from Canada from 1896 to 1905, and indicates how these imports diminished in quantity under the legislation enacted by the Dominion Government following the passage of the Dingley bill.

TABLE 28.—Logs and round timber imported from Canada: 1896 to 1905.¹

YEAR.	Quantity (M feet B. M.).	Value.
1905.....	97,189	\$721,400
1904.....	65,205	536,210
1903.....	72,233	602,709
1902.....	106,128	904,659
1901.....	82,670	777,951
1900.....	101,294	867,922
1899.....	198,135	1,763,306
1898.....	275,381	2,423,269
1897.....	333,104	2,607,506
1896.....	315,009	2,563,644

¹ Bureau of Statistics, Department of Commerce and Labor, "Commerce and Navigation of the United States."

Practically all the rough lumber imported into the United States comes from Canada, that country contributing 98.2 per cent of the total in 1905. Table 29 gives the imports of this commodity from 1889 to 1905, and shows the effect on their volume of the McKinley bill and subsequent tariff legislation.

TABLE 29.—Boards, planks, deals, etc., imported from Canada: 1889 to 1905.¹

YEAR.	Quantity (M feet B. M.).	Value.
1905.....	704,956	\$10,714,417
1904.....	585,194	8,729,135
1903.....	719,909	10,565,629
1902.....	664,976	9,233,226
1901.....	490,400	6,342,050
1900.....	680,069	7,464,208
1899.....	423,705	4,186,515
1898.....	353,134	3,499,569
1897.....	883,270	9,067,312
1896.....	785,871	8,501,991
1895.....	600,790	6,859,078
1894.....	514,461	6,134,204
1893.....	742,351	8,217,331
1892.....	663,134	7,539,766
1891.....	757,149	8,408,046
1890.....	659,703	7,744,954
1889.....	647,842	7,804,163

¹ Bureau of Statistics, Department of Commerce and Labor, "Commerce and Navigation of the United States."

In Table 30 are presented the detailed statistics of the lumber industry for 1905.

TABLE 30.—LUMBER AND TIMBER PRODUCTS—DETAILED

1	STATE OR TERRITORY.	NUMBER OF ESTABLISHMENTS.			CAPITAL.					
		Total.	Saw-mills.	Independent logging or timber camps.	Aggregate.	Logging or timber camps.				
						Total.	Land.	Buildings.	Machinery, tools, live stock, equipment, etc.	Cash and sundries.
1	United States.....	19,127	18,277	850	\$517,224,128	\$90,454,494	\$655,140	\$1,927,817	\$59,899,520	\$27,972,017
2	Alabama.....	590	572	18	12,625,688	3,151,639	18,037	58,268	2,653,728	421,606
3	Alaska.....	6	6	-----	205,238	7,300	-----	-----	3,000	4,300
4	Arizona.....	5	5	-----	1,428,339	260,972	-----	500	259,347	1,125
5	Arkansas.....	852	837	15	27,034,651	5,021,334	5,124	79,846	3,866,689	1,069,675
6	California.....	308	289	19	25,709,302	4,976,748	137,740	140,750	4,202,755	495,503
7	Colorado.....	87	86	1	1,445,132	235,915	975	8,715	102,012	34,213
8	Connecticut.....	114	101	13	839,567	127,859	-----	400	66,280	61,179
9	Delaware.....	75	74	1	242,175	42,000	-----	50	37,100	4,850
10	Florida.....	195	176	22	11,556,330	2,754,274	6,570	31,596	2,495,585	220,523
11	Georgia.....	793	695	98	10,717,658	3,238,059	15,410	46,795	3,005,312	170,542
12	Idaho.....	95	91	4	3,131,991	188,848	100	4,300	89,212	95,236
13	Illinois.....	269	265	4	6,016,586	523,478	5,050	11,835	174,002	332,591
14	Indian Territory.....	41	39	2	183,794	14,910	-----	100	6,700	8,110
15	Indiana.....	774	772	2	9,179,298	299,755	610	6,145	99,030	193,970
16	Iowa.....	49	49	-----	7,784,079	537,650	3,500	2,000	94,300	437,560
17	Kansas.....	4	4	-----	8,135	-----	-----	-----	-----	-----
18	Kentucky.....	854	825	29	11,799,697	2,047,409	6,570	37,014	578,919	1,424,906
19	Louisiana.....	421	387	34	37,385,028	7,301,346	12,345	114,857	5,732,304	1,441,840
20	Maine.....	752	716	36	15,083,395	1,976,050	50,765	68,135	699,821	1,157,329
21	Maryland.....	203	203	-----	1,735,837	338,434	835	7,085	291,178	39,386
22	Massachusetts.....	296	284	12	3,283,773	185,510	1,550	1,815	96,745	85,400
23	Michigan.....	766	693	73	38,507,207	6,202,748	92,283	-----	2,963,013	3,147,452
24	Minnesota.....	223	190	32	28,953,854	4,804,540	58,853	135,369	1,796,956	2,813,362
25	Mississippi.....	618	609	9	23,439,225	5,666,550	12,174	96,406	4,308,547	1,249,423
26	Missouri.....	374	363	11	8,021,437	1,348,244	5,954	46,350	927,469	368,471
27	Montana.....	41	38	3	4,605,052	529,688	1,600	21,445	317,519	189,124
28	Nebraska.....	4	4	-----	25,314	5,900	-----	-----	5,900	-----
29	New Hampshire.....	386	379	7	6,079,442	993,563	2,200	35,050	681,317	274,996
30	New Jersey.....	114	111	3	825,375	80,835	-----	75	47,760	33,000
31	New Mexico.....	23	23	-----	1,886,257	369,279	9,855	35,329	308,154	15,941
32	New York.....	820	813	7	12,599,876	1,936,500	1,930	47,156	657,518	1,229,896
33	North Carolina.....	1,212	1,199	13	10,068,358	2,067,259	3,010	35,815	1,910,093	118,341
34	Ohio.....	829	821	8	11,279,750	1,253,704	-----	4,910	198,759	1,050,035
35	Oregon.....	402	348	54	11,038,323	1,683,442	4,345	30,220	1,080,036	568,841
36	Pennsylvania.....	1,212	1,185	27	22,677,322	4,561,319	5,470	119,715	2,935,134	1,501,000
37	Rhode Island.....	22	20	2	156,141	20,050	-----	-----	10,520	9,530
38	South Carolina.....	439	432	7	7,237,725	1,191,450	4,225	49,925	943,028	194,272
39	South Dakota.....	18	18	-----	163,902	40,638	-----	2,400	33,750	4,488
40	Tennessee.....	1,032	1,009	23	16,638,882	2,417,822	21,190	48,960	808,159	1,539,513
41	Texas.....	299	294	5	18,426,242	3,565,990	8,949	210,133	2,953,720	393,188
42	Utah.....	41	41	-----	87,425	7,915	-----	-----	6,870	1,045
43	Vermont.....	418	417	1	5,409,750	638,125	15,450	32,875	299,691	290,109
44	Virginia.....	804	789	15	9,839,646	1,601,995	2,300	21,530	1,452,244	125,921
45	Washington.....	1,004	809	195	40,953,816	8,971,176	79,230	173,086	5,757,069	2,961,791
46	West Virginia.....	633	620	13	12,442,475	2,978,228	365	41,882	2,014,613	921,368
47	Wisconsin.....	576	549	27	37,677,205	3,887,204	59,076	112,680	2,647,662	1,067,786
48	Wyoming.....	28	24	4	312,396	218,340	1,500	3,300	13,000	200,540
49	All other states and territories ¹	4	3	1	476,038	182,500	-----	3,000	177,000	2,500

¹ Includes establishments distributed as follows: Nevada, 2; Oklahoma, 2.

LUMBER AND TIMBER PRODUCTS.

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SUMMARY, BY STATES AND TERRITORIES: 1905.

CAPITAL—continued.						SALARIED OFFICIALS, CLERKS, ETC.										
Saw and planing mills.						Proprietors and firm members.	Logging or timber camps.									
Total.	Land.	Buildings, dry kilns, etc.	Machinery, tools, and implements.	Cash and sundries.	Aggregate.		Total.		Officers of corporations.		General superintendents, managers, clerks, etc.					
							Number.	Salaries.	Number.	Salaries.	Number.	Salaries.	Men.		Women.	
													Number.	Salaries.	Number.	Salaries.
\$426,769,634	\$21,212,213	\$47,803,847	\$104,361,698	\$253,391,876	24,054	18,485	\$19,873,092	3,953	\$3,673,355	255	\$452,172	3,649	\$3,196,204	49	\$24,979	1
9,474,049	532,319	1,468,261	3,615,032	3,858,437	767	651	686,013	137	123,160	17	24,268	119	98,292	1	000	2
197,938	11,800	38,000	64,220	83,918	5	4	8,000									3
1,167,367	11,100	282,801	191,287	682,179	5	24	52,340	7	6,800			7	6,800			4
22,013,317	547,511	2,696,403	5,851,506	12,917,897	1,015	1,193	1,249,865	218	182,654	6	5,300	211	176,994	1	360	5
20,732,554	856,688	2,754,025	5,284,337	11,837,504	294	610	802,820	177	218,160	17	33,050	159	184,110	1	1,000	6
1,209,217	21,010	86,973	405,051	696,183	88	65	52,720	18	14,755	2	1,950	14	12,355	2	450	7
711,708	43,480	59,050	171,325	437,853	146	34	27,378	8	7,500			8	7,500			8
200,175	8,195	12,605	91,275	88,100	93	1	468									9
8,802,056	435,198	1,198,236	2,872,164	4,296,458	214	548	596,524	113	105,841	4	8,500	109	97,341			10
7,479,599	222,179	937,410	3,369,402	2,950,608	1,049	603	576,815	121	94,015	7	10,000	114	84,015			11
2,943,143	105,552	498,039	988,194	1,351,358	110	89	107,525	22	21,930	3	3,200	19	18,730			12
5,493,108	264,293	798,436	1,060,467	3,369,912	329	209	207,266	25	19,271	2	3,000	21	15,557	2	714	13
168,884	2,441	16,200	85,360	64,883	56	9	5,840	1	1,000			1	1,000			14
8,879,543	469,531	656,110	1,729,808	6,024,094	1,028	443	398,704	19	18,598	3	5,000	14	12,618	2	980	15
7,246,429	392,527	320,995	683,059	5,849,848	58	105	132,838	8	2,000			8	2,000			16
8,135	450	775	3,300	3,610	5											17
9,752,288	471,067	808,190	2,281,911	6,191,120	1,103	517	489,312	98	89,280	6	13,635	91	74,745	1	900	18
30,083,682	1,133,769	4,526,518	7,687,033	16,736,362	378	1,730	2,091,979	356	375,924	32	46,294	324	329,630			19
13,107,345	1,095,275	2,050,782	2,695,614	7,265,694	984	500	369,242	207	95,139	6	7,259	200	87,380	1	500	20
1,397,403	38,806	145,302	434,722	778,573	284	39	43,392	6	5,480				5,480			21
3,098,263	343,772	378,872	544,244	1,831,375	396	42	69,373	7	2,240			7	2,240			22
32,304,459	2,004,114	2,366,092	5,126,676	22,807,577	953	1,051	1,145,545	112	124,567	10	37,300	96	84,978	6	2,289	23
24,149,314	707,593	1,446,306	2,913,086	19,082,329	727	774	948,231	274	252,084	14	31,000	258	218,798	2	2,286	24
17,772,675	614,570	3,161,319	5,735,005	8,261,781	247	1,096	1,185,616	242	232,422	8	17,300	233	214,222	1	900	25
6,673,193	478,582	598,191	1,537,510	4,058,910	498	447	450,845	110	92,778	9	10,750	98	80,078	3	1,950	26
4,075,364	224,185	624,196	764,626	2,462,357	42	134	187,627	45	44,583			44	44,163	1	420	27
19,414	3,500	2,550	8,200	5,164	4	1	978									28
5,085,879	253,360	479,443	1,087,049	3,266,027	500	82	80,660	41	36,100	3	8,500	38	27,600			29
744,540	114,790	101,725	216,850	311,175	131	8	4,248	1	500			1	500			30
1,516,978	44,660	269,328	406,512	796,478	23	76	92,819	15	16,625	2	3,800	13	12,825			31
10,663,376	804,183	1,170,313	2,185,819	6,503,061	1,036	290	298,591	58	45,831	2	3,500	56	42,331			32
8,001,099	366,668	978,035	3,226,627	3,429,769	1,667	562	498,013	123	98,538	7	10,533	116	83,005			33
10,026,046	688,936	682,880	1,851,303	6,802,927	1,093	420	349,689	39	34,883	1	1,200	37	33,633	1	50	34
9,354,881	941,564	1,231,362	3,339,051	3,842,904	518	335	400,185	60	55,600	10	12,700	49	42,420	1	480	35
18,116,003	550,703	1,489,889	3,670,775	12,404,636	1,607	592	584,194	129	118,006	3	3,550	121	112,631	5	1,825	36
136,091	4,225	2,950	30,650	98,266	26	1	1,200									37
6,046,275	133,705	732,423	2,507,984	2,672,163	556	301	281,164	78	56,557	2	2,200	76	54,357			38
123,264	4,250	9,700	41,020	68,294	16	8	6,320	2	1,360			2	1,360			39
14,221,060	736,922	913,069	2,922,504	9,648,565	1,489	611	601,557	78	75,602	7	12,300	68	61,802	3	1,500	40
14,860,252	1,079,216	2,335,734	4,343,311	7,101,991	350	936	1,056,589	172	187,759	3	12,300	168	174,819	1	640	41
79,510	6,730	5,180	40,525	27,075	72	11	1,470									42
4,771,625	336,933	655,185	1,237,231	2,542,276	523	79	63,924	18	16,825	2	5,000	16	11,825			43
8,237,651	234,042	736,377	2,981,619	4,285,613	1,096	375	345,776	93	72,910	5	7,533	86	64,522	2	855	44
31,982,640	2,569,288	4,845,077	11,297,765	13,270,510	985	1,167	1,430,762	250	321,211	38	63,520	208	256,171	4	1,520	45
9,464,247	234,935	713,815	2,026,643	6,488,854	859	477	462,180	162	123,834	7	9,062	153	114,392	2	380	46
33,790,001	1,056,248	2,487,428	4,673,473	25,572,852	593	1,208	1,385,015	278	256,133	13	29,068	259	222,685	6	4,380	47
94,056	7,548	12,317	39,073	35,118	35	24	27,900	23	26,700	4	9,600	19	17,100			48
293,538	3,800	19,000	41,500	229,238	1	8	13,580	2	3,200			2	3,200			49

LUMBER AND TIMBER PRODUCTS.

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SUMMARY, BY STATES AND TERRITORIES: 1905—Continued.

WAGE-EARNERS AND WAGES—continued.												
Logging or timber camps.				Saw and planing mills.								
Men 16 years and over.				Total.				Men 16 years and over.				
Greatest number.	Least number.	Average number.	Wages.	Greatest number.	Least number.	Average number.	Wages.	Greatest number.	Least number.	Average number.	Wages.	
247,346	126,009	146,596	\$66,989,795	393,023	241,267	258,030	\$116,031,724	387,958	238,229	254,613	\$115,328,402	1
7,967	5,013	5,220	1,786,113	14,358	9,244	9,462	3,276,026	13,861	8,809	9,028	3,194,332	2
10	10	5	2,460	121	42	58	69,410	118	41	57	69,010	3
242	158	198	144,893	334	308	322	249,874	333	307	321	249,474	4
10,209	5,556	6,749	2,959,418	24,071	15,220	15,549	6,602,425	23,731	15,047	15,314	6,554,319	5
11,297	5,179	6,416	4,301,177	10,025	5,733	6,765	4,342,460	9,918	5,669	6,695	4,317,507	6
550	289	284	185,285	1,282	746	774	438,080	1,267	733	762	433,256	7
886	518	635	285,813	578	423	434	207,218	578	423	434	207,218	8
342	153	125	35,645	450	309	197	66,765	450	309	197	66,765	9
4,778	2,891	3,531	1,214,709	8,891	6,026	6,877	2,532,863	8,768	5,968	6,798	2,519,561	10
8,990	5,917	6,254	2,034,381	12,620	9,105	9,110	2,936,919	12,416	8,976	8,966	2,913,635	11
697	564	572	165,452	2,105	1,161	1,071	647,628	2,094	1,152	1,064	645,534	12
1,609	857	936	435,926	5,268	3,233	3,559	1,468,743	5,231	3,214	3,538	1,464,260	13
122	111	98	56,505	411	319	214	91,512	411	319	214	91,512	14
1,291	637	734	317,330	9,497	6,146	6,158	2,541,080	9,421	6,096	6,111	2,530,529	15
403	130	88	30,755	2,729	922	1,847	916,110	2,637	890	1,785	902,818	16
6,501	3,704	3,938	1,674,809	11,184	6,731	5,780	2,136,108	11,025	6,631	5,684	2,118,770	17
11,228	6,723	8,498	3,969,588	23,387	15,632	17,855	8,159,477	23,061	15,455	17,627	8,112,002	18
12,491	5,968	4,880	2,121,392	13,455	6,654	7,148	3,308,406	13,386	6,608	7,109	3,300,203	19
1,344	832	835	421,726	1,992	1,442	1,144	438,406	1,911	1,421	1,114	434,445	20
1,225	611	583	269,523	2,230	1,257	1,359	691,845	2,206	1,247	1,344	688,207	21
19,581	5,572	10,472	4,839,872	26,257	13,839	16,988	8,218,105	25,889	13,630	16,780	8,171,871	22
15,545	4,654	7,487	3,435,809	15,610	4,897	9,726	5,215,262	15,581	4,875	9,705	5,210,778	23
10,923	8,742	8,185	3,491,697	17,380	13,100	13,048	5,288,658	17,131	12,923	12,852	5,244,280	24
4,000	2,021	2,631	1,107,799	8,553	5,788	6,460	2,529,603	8,262	5,624	6,235	2,484,305	25
1,813	297	1,004	605,003	1,802	552	1,176	874,252	1,801	551	1,175	874,102	26
13	5	11	1,500	30	9	8	3,881	30	9	8	3,881	27
4,221	1,630	2,122	908,743	3,814	2,472	2,472	1,108,388	3,780	2,448	2,448	1,102,538	28
722	340	384	162,920	697	485	516	225,040	696	484	515	224,728	29
679	340	406	219,053	1,134	541	728	316,930	1,088	529	711	314,487	30
7,170	2,440	3,176	1,337,240	8,804	4,523	5,010	2,312,149	8,761	4,509	4,985	2,305,990	31
8,041	4,632	4,670	1,402,464	16,560	10,598	9,821	2,997,414	16,306	10,448	9,676	2,977,245	32
2,330	1,289	1,272	563,319	8,552	5,173	5,170	2,315,451	8,509	5,151	5,150	2,311,252	33
4,056	2,296	2,350	1,562,775	7,391	4,538	4,934	3,055,051	7,333	4,501	4,898	3,043,066	34
11,092	6,918	7,353	3,453,019	13,652	9,807	9,321	4,506,856	13,426	9,678	9,165	4,464,707	35
155	75	109	51,284	112	94	89	44,479	112	94	89	44,479	36
5,320	3,618	3,944	1,003,582	8,051	5,887	5,712	1,574,738	7,955	5,829	5,655	1,568,380	37
193	70	88	52,916	175	125	76	44,180	175	125	76	44,180	38
6,518	4,346	4,486	1,829,335	17,240	11,036	10,414	3,670,588	16,839	10,809	10,122	3,622,993	39
5,995	4,086	4,234	1,921,274	12,956	8,962	9,098	3,958,470	12,905	8,930	9,065	3,952,459	40
78	39	20	9,638	219	155	69	37,709	205	144	64	36,218	41
3,179	1,266	1,205	521,226	5,040	2,687	3,011	1,288,277	5,004	2,670	2,991	1,282,518	42
7,519	4,816	4,743	1,489,659	11,008	7,789	7,447	2,453,983	10,760	7,625	7,290	2,426,495	43
16,142	8,932	10,229	7,095,437	24,973	17,375	17,794	11,517,881	24,853	17,321	17,736	11,497,369	44
7,417	4,548	4,852	2,253,992	9,283	6,240	5,608	2,540,116	9,208	6,196	5,568	2,532,217	45
21,965	7,076	10,588	5,112,810	28,490	13,813	17,530	8,744,636	28,275	13,683	17,372	8,706,445	46
427	91	242	113,892	142	59	55	31,421	141	58	54	31,211	47
69	29	42	30,637	88	62	55	32,545	88	62	55	32,545	48

MANUFACTURES.

TABLE 30.—LUMBER AND TIMBER PRODUCTS—DETAILED

STATE OR TERRITORY.	WAGE-EARNERS AND WAGES—continued.								AVERAGE NUMBER OF WAGE-EARNERS EMPLOYED DURING EACH MONTH.				
	Saw and planing mills—Continued.								Logging or timber camps.				
	Women 16 years and over.				Children under 16 years.				Men 16 years and over.				
	Greatest number.	Least number.	Average number.	Wages.	Greatest number.	Least number.	Average number.	Wages.	January.	February.	March.	April.	May.
1 United States.....	1,317	851	911	\$236,995	3,748	2,187	2,506	\$466,327	169,029	167,958	154,834	133,485	134,210
2 Alabama.....	219	217	218	52,962	278	218	216	28,732	5,972	5,383	5,306	5,367	5,187
3 Alaska.....					3	1	1	400		10	10	10	10
4 Arizona.....					1	1	1	400	207	186	197	217	215
5 Arkansas.....	8	8	5	1,420	332	165	230	46,686	6,383	6,555	6,189	6,097	6,312
6 California.....	39	31	22	11,750	68	33	48	13,203	2,887	2,846	3,293	6,094	9,159
7 Colorado.....	13	11	11	4,514	2	2	1	310	240	241	248	278	258
8 Connecticut.....									682	673	681	631	615
9 Delaware.....									117	144	160	164	144
10 Florida.....	53	13	19	5,200	84	45	60	8,102	3,692	3,801	3,750	3,633	3,371
11 Georgia.....					204	129	144	23,284	6,313	6,414	6,621	6,581	6,396
12 Idaho.....	10	8	6	1,844	1	1	1	250	465	210	189	199	206
13 Illinois.....	3	3	2	640	34	16	19	3,843	875	895	922	902	902
14 Indian Territory.....									106	104	104	102	105
15 Indiana.....	21	19	11	3,636	55	31	36	6,915	769	803	682	637	676
16 Iowa.....	25		11	2,580	67	32	51	10,712	377	275	147	41	33
17 Kansas.....													
18 Kentucky.....	9	9	7	1,446	150	91	89	15,892	3,374	3,521	3,832	3,974	3,913
19 Louisiana.....	8		2	400	318	177	226	47,075	7,897	8,211	8,379	8,426	8,774
20 Maine.....	44	33	27	6,154	25	13	12	2,049	9,715	8,874	5,233	2,336	2,103
21 Maryland.....	20		7	1,000	61	21	23	2,961	734	754	824	946	933
22 Massachusetts.....	19	7	11	3,023	5	3	4	615	894	902	815	603	512
23 Michigan.....	89	69	72	15,895	279	140	136	30,339	16,454	15,608	12,447	6,820	6,347
24 Minnesota.....	4	4	3	490	25	18	18	3,994	14,402	14,236	11,997	5,309	3,067
25 Mississippi.....	46	39	42	11,891	203	138	154	32,487	7,815	7,833	7,844	8,040	8,450
26 Missouri.....	82	38	60	15,391	209	126	165	29,907	2,486	2,573	2,605	2,571	2,527
27 Montana.....	1	1	1	150					1,582	1,514	979	902	796
28 Nebraska.....									9	9	5	3	2
29 New Hampshire.....	33	23	23	5,610	1	1	1	240	3,567	3,476	2,855	1,769	1,529
30 New Jersey.....					1	1	1	312	505	514	483	402	367
31 New Mexico.....					46	12	17	2,443	406	389	465	343	371
32 New York.....	35	9	20	5,350	8	5	5	809	5,232	5,289	2,796	1,590	1,395
33 North Carolina.....	25	17	13	1,835	229	133	132	18,334	4,327	4,404	4,799	4,880	4,690
34 Ohio.....	22	12	8	1,958	21	10	12	2,241	1,231	1,308	1,271	1,244	1,248
35 Oregon.....	32	15	19	5,622	26	22	17	6,363	2,048	2,036	2,185	2,607	2,676
36 Pennsylvania.....	81	58	67	20,740	145	71	89	21,409	6,921	6,883	7,202	7,313	8,165
37 Rhode Island.....									147	146	145	141	133
38 South Carolina.....	14	6	6	970	82	52	51	5,388	3,936	4,001	4,119	4,226	3,856
39 South Dakota.....									109	109	107	82	83
40 Tennessee.....	166	103	115	22,869	235	124	177	24,726	4,191	4,115	4,454	4,571	4,685
41 Texas.....	12	5	3	432	39	27	30	5,579	4,176	4,132	4,277	4,305	4,279
42 Utah.....	9	7	3	995	5	4	2	496	23	10	22	8	8
43 Vermont.....	25	11	15	4,903	11	6	5	856	2,357	2,341	1,637	703	441
44 Virginia.....					248	164	157	27,488	3,771	3,994	4,971	5,084	5,000
45 Washington.....	93	38	41	15,298	27	16	17	5,214	8,839	10,393	11,256	11,697	11,728
46 West Virginia.....	19	9	8	1,380	56	35	32	6,519	4,190	4,335	4,669	4,887	5,193
47 Wisconsin.....	51	27	32	8,437	164	103	126	29,754	18,269	17,203	13,394	6,500	7,148
48 Wyoming.....	1	1	1	210					325	293	256	233	140
49 All other states and territories.....									12	12	12	37	62

LUMBER AND TIMBER PRODUCTS.

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SUMMARY, BY STATES AND TERRITORIES: 1905—Continued.

AVERAGE NUMBER OF WAGE-EARNERS EMPLOYED DURING EACH MONTH—continued.							AVERAGE NUMBER OF WAGE-EARNERS, INCLUDING PIECEWORKERS, EMPLOYED DURING EACH MONTH.												
Logging or timber camps—Continued.							Saw and planing mills.												
Men 16 years and over—Continued.							Men 16 years and over.												
June.	July.	August.	Sep-tem-ber.	Octo-ber.	Novem-ber.	Decem-ber.	Janu-ary.	Febru-ary.	March.	April.	May.	June.	July.	Aug-ust.	Sep-tem-ber.	Octo-ber.	Novem-ber.	Decem-ber.	
131,482	125,046	125,935	136,921	152,112	162,991	165,149	215,104	221,709	242,966	266,388	281,725	281,712	272,539	272,733	271,564	263,203	245,643	220,070	1
5,232	4,555	4,653	5,106	5,153	5,389	5,337	10,123	9,040	9,031	8,645	8,675	8,625	8,419	8,760	9,223	9,204	9,269	9,322	2
218	193	184	174	181	205	199	17	17	29	75	83	98	81	81	77	82	31	13	3
6,497	6,880	7,131	7,432	7,445	7,372	6,695	14,320	14,729	15,603	15,526	15,484	14,984	15,068	16,089	16,149	15,593	15,418	14,805	4
9,758	9,782	9,586	8,334	6,725	5,011	3,517	4,159	4,208	4,814	5,416	8,263	8,824	8,843	8,762	8,244	7,387	6,243	5,177	5
344	392	338	316	284	247	222	624	597	702	756	800	827	857	927	840	810	727	677	7
582	506	525	620	710	700	695	462	479	485	478	466	431	350	353	386	415	453	450	8
98	83	83	118	143	138	108	126	171	215	244	232	184	167	179	220	234	227	165	9
3,311	3,313	3,366	3,544	3,531	3,562	3,498	6,506	6,746	6,928	7,010	7,172	7,109	6,847	6,831	6,895	6,621	6,544	6,367	10
6,071	6,099	6,055	6,101	6,172	6,237	5,988	9,016	9,163	9,355	9,199	8,820	8,788	8,608	8,879	9,030	9,064	8,993	8,677	11
128	171	169	172	565	549	481	433	515	663	1,060	1,406	1,587	1,713	1,554	1,379	1,150	918	390	12
892	889	889	975	1,088	1,089	934	2,860	3,074	3,229	3,565	3,638	3,715	3,740	3,822	4,000	3,941	3,617	3,255	13
105	100	88	88	90	90	94	158	178	196	214	248	252	253	241	250	219	185	174	14
661	625	718	793	810	861	773	5,359	5,493	6,239	6,563	6,576	6,340	6,300	6,217	6,162	6,290	6,066	5,727	15
22	20	16	22	27	35	41	824	837	977	1,795	2,253	2,390	2,454	2,384	2,326	2,342	1,885	953	16
3,929	3,737	3,694	4,441	4,544	4,371	3,926	4,207	4,641	5,741	6,599	6,449	6,323	5,972	5,921	5,971	5,723	5,629	5,032	17
8,855	8,694	8,742	8,525	8,661	8,444	8,368	16,630	17,033	17,518	17,573	17,940	17,663	17,658	17,660	18,282	18,162	17,980	17,425	18
1,464	735	867	2,655	6,137	8,457	9,984	4,221	4,692	6,443	8,425	9,324	9,182	8,666	8,309	8,170	7,563	6,367	3,946	19
915	861	880	884	801	801	717	912	937	1,138	1,318	1,332	1,258	1,142	1,084	1,121	1,101	1,058	967	20
416	275	304	429	505	629	712	1,460	1,402	1,413	1,452	1,364	1,251	985	1,147	1,341	1,426	1,416	1,471	21
6,667	6,675	6,779	8,591	10,438	13,182	15,656	12,197	12,980	14,111	18,523	21,289	22,056	20,683	19,671	18,017	16,806	14,183	10,844	22
2,205	2,113	2,039	3,368	7,437	11,052	12,619	4,193	4,539	5,785	9,008	13,179	13,609	13,431	13,667	13,233	12,806	8,591	4,419	23
8,294	8,107	8,193	8,423	8,447	8,550	8,224	12,205	12,157	12,617	13,245	13,147	13,001	13,187	13,158	13,166	13,178	12,866	12,297	24
2,544	2,701	2,719	2,919	2,890	2,693	2,344	5,844	6,053	6,330	6,280	6,577	6,508	6,460	6,442	6,432	6,265	6,043	5,586	25
624	420	338	1,046	1,165	1,247	1,105	814	794	963	1,164	1,356	1,430	1,495	1,493	1,451	1,314	1,033	793	26
2	2	2	2	2	2	2	18	14	11	11	7	8	5	5	5	5	5	5	27
1,458	824	1,017	1,412	2,105	2,393	3,059	2,659	2,729	2,910	2,961	2,799	2,472	2,019	1,834	2,108	2,210	2,261	2,414	28
345	318	304	101	351	431	487	450	446	543	532	523	508	497	507	680	484	510	500	29
331	312	309	593	466	505	322	545	594	719	813	796	755	706	741	745	687	755	676	30
1,382	1,562	2,235	3,056	4,150	4,619	4,806	3,672	3,529	4,597	5,617	6,363	6,176	5,772	5,557	5,570	5,005	4,300	3,662	32
4,683	4,594	4,665	4,802	4,792	4,804	4,600	8,897	9,177	9,879	10,077	9,906	9,909	9,630	9,597	9,903	9,882	9,943	9,312	33
1,249	1,195	1,193	1,315	1,336	1,335	1,340	4,238	4,273	4,906	5,586	5,521	5,489	5,306	5,356	5,511	5,473	5,326	4,815	34
2,675	2,587	2,527	2,380	2,238	2,228	2,013	3,761	3,832	4,296	5,090	5,681	5,822	5,651	5,632	5,385	4,921	4,500	4,205	35
8,265	7,596	7,374	7,131	7,164	7,084	6,838	7,448	7,597	8,331	9,864	10,291	10,134	9,655	9,696	9,802	9,482	9,177	8,503	36
89	85	85	80	80	86	91	100	101	96	96	96	83	75	57	79	85	90	100	37
3,832	3,854	3,753	3,748	3,803	4,038	4,162	5,306	5,671	5,646	5,717	5,899	5,709	5,689	5,738	5,520	5,616	5,759	5,590	38
64	65	54	61	78	108	136	65	65	83	85	81	83	98	76	76	81	54	65	39
4,611	4,495	4,509	4,675	4,637	4,544	4,345	9,213	9,393	9,966	10,507	10,430	10,637	10,418	10,583	10,721	10,143	9,905	9,548	40
4,116	4,184	4,315	4,267	4,353	4,255	4,149	8,766	8,982	9,147	9,091	9,230	9,028	9,084	9,147	9,254	9,152	9,061	8,858	41
11	30	32	25	28	26	17	52	45	36	31	51	64	98	101	91	75	63	61	42
404	364	374	678	1,191	1,703	2,267	2,515	2,724	3,120	3,777	3,990	3,503	2,974	2,863	2,849	2,747	2,475	2,355	43
4,931	4,746	4,620	5,195	5,283	5,076	4,245	5,922	6,279	7,141	7,534	7,628	7,566	7,371	7,408	8,060	8,076	7,727	6,768	44
10,647	8,743	9,039	10,122	10,825	10,123	9,336	15,807	16,993	18,442	19,034	19,322	18,670	17,186	17,814	18,105	17,619	17,558	16,282	45
5,481	5,473	5,288	4,754	4,737	4,690	4,527	4,400	4,527	5,473	5,860	6,071	6,100	6,070	6,021	5,837	5,839	5,396	5,222	46
6,907	5,624	5,334	7,125	10,159	13,618	15,775	13,213	13,882	16,685	19,519	20,484	22,077	20,420	19,918	18,442	17,456	14,570	11,798	47
105	106	129	260	321	363	373	34	30	32	39	69	78	82	87	69	53	40	35	48
63	63	63	65	64	39	12	30	30	30	30	80	80	59	50	52	68	82	30	49

MANUFACTURES.

TABLE 30.—LUMBER AND TIMBER PRODUCTS—DETAILED

STATE OR TERRITORY.		AVERAGE NUMBER OF WAGE-EARNERS, INCLUDING PIECEWORKERS, EMPLOYED DURING EACH MONTH—continued.																							
		Saw and planing mills—Continued.																							
		Women 16 years and over.												Children under 16 years.											
		Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1	United States..	853	871	907	919	986	957	985	936	905	947	849	817	2,165	2,219	2,419	2,522	2,679	2,747	2,695	2,760	2,707	2,523	2,381	2,255
2	Alabama.....	218	218	219	220	220	218	218	217	217	217	217	217	207	215	216	229	233	235	210	205	227	200	208	206
3	Alaska.....													2	2	2	2	2	2						
4	Arizona.....													1	1	1	1	1	1	1	1	1	1	1	1
5	Arkansas.....	6	6	7	6	6	6	7	7	3	3	2	2	226	228	232	231	233	228	237	255	264	203	215	208
6	California.....	10	10	10	12	32	30	42	41	30	23	14	11	25	34	38	43	57	55	64	58	55	49	48	
7	Colorado.....	11	11	11	11	10	11	11	12	12	12	12	8						2	8	2	2	1	1	1
8	Connecticut.....																								
9	Delaware.....																								
10	Florida.....	21	21	28	26	23	15	15	15	15	15	15	19	51	61	60	59	57	53	61	69	73	67	54	55
11	Georgia.....													137	139	145	155	142	147	149	149	152	143	136	134
12	Idaho.....	4	4	4	5	5	6	6	9	7	7	6	6					2	2	2	2	2	2		
13	Illinois.....								3	3	2	5	5	13	13	19	20	18	18	23	23	22	18	22	19
14	Indian Territory.....																								
15	Indiana.....	8	8	6	18	18	18	19	8	8	7	7	7	25	23	29	31	35	43	42	42	39	43	40	40
16	Iowa.....					6	7	25	22	25	24	23		32	32	33	49	67	66	63	62	62	62	47	33
17	Kansas.....	7	7	7	8	8	9	7	7	6	6	6	6	65	82	95	95	92	96	89	98	94	92	87	83
18	Kentucky.....	4	4	4	3	2					0	0	4	3	169	187	238	217	235	244	235	250	248	226	216
19	Louisiana.....	22	23	21	23	30	34	35	30	31	30	23	22	4	4	4	10	19	20	19	19	17	15	10	3
20	Maine.....	21	21	21	21									37	38	45	47	18	19	19	13	12	11	9	8
21	Maryland.....																								
22	Massachusetts.....	11	15	11	6	7	8	9	11	11	11	16	16	5	5	5	4	4	3	3	3	4	4	4	4
23	Michigan.....	82	82	79	74	79	74	64	64	58	68	65	75	1	82	88	93	137	179	205	197	192	154	116	109
24	Minnesota.....	2	3	5	3	3	3	3	3	3	3	3	3	16	16	16	16	18	18	20	21	20	21	18	16
25	Mississippi.....	41	41	41	43	41	42	42	42	42	44	43	42	146	145	143	141	146	161	161	167	171	160	154	153
26	Missouri.....	19	28	43	54	75	73	76	75	74	81	64	58	153	143	155	158	174	170	160	184	179	182	170	152
27	Montana.....	2	2	2	2	2	2																		
28	Nebraska.....																								
29	New Hampshire.....	32	33	34	29	29	30	14	14	15	15	15	16	1	1	1	1	1	1	1	1	1	1	1	1
30	New Jersey.....													1	1	1	1	1	1	1	1	1	1	1	1
31	New Mexico.....																	18	26	42	40	36	30	12	12
32	New York.....	15	15	17	17	17	18	19	27	27	31	22	15	2	2	2	6	6	6	5	8	8	6	3	3
33	North Carolina.....	19	19	19	17	20	9	9	7	6	6	6	19	144	146	147	147	171	143	127	103	104	107	105	140
34	Ohio.....	2	2	5	10	13	13	10	11	11	7	7	5	9	8	11	13	15	18	17	16	9	9	10	10
35	Oregon.....	12	12	16	28	31	32	30	24	15	12	9	7	14	14	14	15	20	25	23	19	18	14	14	14
36	Pennsylvania.....	51	65	66	71	71	69	72	76	75	71	66	51	62	65	77	87	95	114	115	121	109	91	78	54
37	Rhode Island.....																								
38	South Carolina.....	9	9	9	12	12	12	9						44	45	69	70	69	51	44	36	30	34	56	64
39	South Dakota.....																								
40	Tennessee.....	121	121	128	126	126	128	129	106	110	109	88	12	172	168	170	174	182	186	181	201	180	168	175	167
41	Texas.....										12	12	12	30	31	30	30	30	30	27	30	29	30	31	32
42	Utah.....	6	4	2				3	4	4				3	3	3	5	1	2	4	5	3			2
43	Vermont.....	15	15	10	15	14	13	17	18	15	20	14	14	5	5	5	5	8	6	4	4	4	6	4	2
44	Virginia.....													141	136	159	152	158	156	147	163	161	185	169	157
45	Washington.....	44	33	31	10	37	34	48	43	42	67	50	53	14	14	18	18	20	18	21	21	20	17	11	12
46	West Virginia.....	6	6	11	11	11	11	10	10	10	8	1	1	23	22	28	30	38	39	40	38	35	38	25	28
47	Wisconsin.....	32	33	41	37	37	30	28	28	28	30	32		104	104	118	128	132	142	140	149	154	138	109	94
48	Wyoming.....					1	2	2	2	2	2	1													
49	All other states and territories.....																								

LUMBER AND TIMBER PRODUCTS.

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SUMMARY, BY STATES AND TERRITORIES: 1905--Continued.

MISCELLANEOUS EXPENSES.							MATERIALS USED.						
Total.	Rent of works.	Taxes.	Rent of offices, interest, insurance, and all other sundry expenses not hitherto included.	Animals used in logging.		Contract work.	Aggregate cost.	Logging or timber camps.					
				Number.	Cost of keep.			Total cost.	Stumpage value of timber cut for logs or bolts.		Other stumpage, for ties, poles, etc. (cost).	Supplies (cost).	
								M feet B. M.	Cost.				
\$2,886,280	\$447,902	\$5,008,238	\$30,510,255	131,529	\$12,212,947	\$34,706,938	\$183,786,210	\$80,412,828	27,940,097	\$72,347,227	\$3,562,710	\$4,502,891	1
2,588,920	18,722	93,587	801,784	11,587	864,051	810,776	3,909,616	1,937,361	1,106,362	1,718,966	38,295	180,100	2
8,573	1,254	349	6,970				77,914	500	1,000	500			3
120,177		7,764	30,257	123	21,139	61,017	162,361	137,544	50,957	120,134	7,508	9,902	4
5,040,775	18,136	247,986	1,990,205	6,665	638,182	2,146,206	6,829,651	3,002,945	1,490,729	2,661,303	96,883	244,759	5
2,617,329	5,186	229,452	1,325,551	3,351	323,815	733,325	2,652,951	1,877,015	1,098,550	1,523,339	96,462	257,214	6
275,837	2,031	12,829	115,410	565	83,764	61,803	490,370	153,602	96,713	137,969	2,860	12,773	7
236,070	400	3,856	77,386	427	44,246	110,182	499,802	391,812	57,569	239,178	148,534	4,100	8
57,171	407	893	11,026	266	14,615	30,230	143,979	92,415	25,581	85,512	5,628	1,275	9
1,641,874	6,880	92,292	650,826	3,397	364,791	527,085	2,870,497	1,468,125	674,264	1,230,710	28,875	208,540	10
2,059,604	11,956	80,550	570,615	10,195	1,060,070	336,413	2,996,891	2,255,954	1,145,344	1,922,365	163,070	170,519	11
683,872	521	73,181	236,348	222	21,940	351,782	771,437	164,123	90,755	126,193	30,250	7,680	12
643,776	7,362	27,396	411,953	576	34,871	162,194	3,326,460	336,342	99,625	283,196	48,243	4,903	13
84,402	50	850	32,479	64	2,523	48,200	206,765	30,170	2,796	8,198	21,005	967	14
971,310	22,031	71,621	573,314	771	59,355	244,989	7,648,250	1,097,230	137,451	1,051,813	35,262	10,155	15
813,699	260	37,892	278,166	272	22,615	475,066	2,781,420	455,009	87,244	445,906	1,503	7,600	16
1,966	85	156	1,775				4,875						17
1,797,672	9,964	55,519	651,298	3,020	213,370	867,521	5,354,554	1,562,200	355,365	1,326,968	168,093	67,139	18
6,401,242	20,092	294,398	3,005,641	6,710	687,350	2,393,761	8,796,944	5,276,056	2,088,971	4,727,272	110,463	438,321	19
2,538,186	32,482	105,166	812,997	4,411	332,530	1,255,011	7,084,131	2,425,643	621,943	2,300,852	74,255	50,536	20
250,154	639	8,910	75,725	624	53,401	111,479	1,043,346	465,245	101,612	423,593	34,417	7,235	21
459,532	10,010	27,776	222,066	734	72,671	127,009	2,428,441	476,915	103,392	433,628	37,738	5,549	22
5,557,963	18,222	744,039	2,070,159	6,309	773,778	1,951,765	14,182,066	6,467,277	1,488,661	5,636,684	524,113	306,480	23
6,333,459	13,275	479,647	1,641,328	5,185	478,998	3,720,211	12,302,578	6,862,475	1,392,660	6,478,318	183,015	201,142	24
3,644,663	4,022	200,068	1,453,760	12,427	864,207	1,122,606	5,893,360	3,331,534	1,492,789	2,983,786	97,008	250,740	25
2,007,299	8,709	55,403	635,357	3,086	344,843	962,987	2,650,497	940,473	538,110	767,939	77,159	95,375	26
505,015	495	43,696	185,851	716	76,903	198,070	426,825	328,174	218,094	289,122	12,340	26,712	27
2,320	25	210	1,485	12	600		5,369	2,350	750	2,250		100	28
1,274,885	6,085	57,996	225,560	2,170	180,021	805,223	2,817,671	1,731,729	359,971	1,541,372	162,928	27,429	29
135,070	1,291	5,951	38,300	303	33,478	56,050	313,611	209,731	33,579	179,423	28,643	1,665	30
221,133	200	24,829	108,002	262	29,657	58,445	254,277	199,900	76,944	172,168	2,297	25,435	31
1,454,697	49,893	69,915	512,770	2,805	266,713	555,406	5,309,703	1,884,639	394,355	1,792,247	71,007	21,385	32
2,379,742	19,949	67,810	594,996	5,026	484,735	1,212,252	4,470,020	2,120,765	1,056,777	2,027,335	8,455	84,975	33
1,612,773	19,161	60,343	804,214	1,688	139,206	589,849	5,099,015	1,821,380	260,522	1,764,545	41,867	14,968	34
1,209,294	11,110	93,418	693,512	1,349	131,500	279,754	4,412,422	702,594	658,857	629,802	10,773	62,019	35
5,749,729	10,797	165,137	1,210,473	4,581	496,900	3,866,422	10,005,505	7,260,612	1,544,519	6,735,841	395,028	129,743	36
83,091		977	10,108	100	12,646	59,360	100,177	95,230	12,848	52,960	42,020	250	37
791,396	2,066	34,093	373,542	3,226	297,407	84,288	1,617,713	852,954	469,831	777,346	13,159	62,449	38
61,741	65	1,230	8,318	173	21,818	30,310	38,987	31,636	13,686	27,011	3,435	1,190	39
2,466,319	18,420	54,168	981,105	3,425	291,137	1,121,489	8,520,212	2,145,978	510,980	1,780,730	329,723	35,525	40
2,461,832	8,068	86,975	752,055	6,440	525,263	1,089,471	3,642,484	2,599,609	1,260,419	2,241,919	127,303	230,387	41
7,709	1,119	551	3,409	53	2,530	100	55,264	4,040	2,914	3,770		270	42
774,931	5,370	38,367	252,393	2,203	168,469	310,332	2,183,068	813,027	201,756	793,347	4,785	14,895	43
1,631,468	10,382	51,596	643,605	4,390	439,956	485,929	3,339,475	1,936,517	840,774	1,810,158	50,801	75,558	44
5,439,304	35,259	334,002	2,682,430	2,234	341,188	2,046,425	16,325,954	4,103,675	3,127,729	3,333,627	17,973	752,075	45
2,492,212	22,078	70,970	718,610	2,555	297,802	1,382,752	3,763,461	2,488,462	732,515	2,289,175	67,791	131,496	46
5,125,145	13,167	789,999	1,970,706	6,600	589,675	1,761,598	15,818,278	7,814,076	1,796,555	7,445,044	116,469	252,563	47
151,148	96	2,149	48,649	88	3,988	96,266	40,420	31,337	5,990	6,840	22,509	1,988	48
19,801		2,576	7,766	48	3,930	5,529	117,143	26,448	11,289	16,873	2,765	6,810	49

TABLE 30.—LUMBER AND TIMBER PRODUCTS—DETAILED

STATE OR TERRITORY.	MATERIALS USED—continued.									
	Sawmills (including veneer mills, stave mills, etc.).									
	Total cost.	Logs (scaled measurement) purchased.		Bolts, purchased.		Fuel (cost).	Rent of power and heat (cost).	Mill supplies (cost).	All other materials (cost).	Freight (cost).
		M feet B. M.	Cost.	Cords.	Cost.					
1 United States...	\$93,476,912	8,592,608	\$75,880,379	1,850,389	\$7,052,291	\$189,923	\$25,764	\$5,697,667	\$2,694,540	\$1,936,348
2 Alabama.....	1,769,713	160,446	1,263,922	23,479	126,995	2,060	64	170,801	176,647	29,224
3 Alaska.....	77,114	6,669	66,834					4,390		5,890
4 Arizona.....	20,724	1,188	5,563					5,204	9,957	
5 Arkansas.....	3,362,802	312,634	1,825,091	152,209	975,362	640		277,112	221,654	62,943
6 California.....	601,694	25,457	175,359	19,726	102,512	12,880	1,530	173,803	122,183	13,427
7 Colorado.....	314,082	42,300	280,800			150		15,309	9,823	8,000
8 Connecticut.....	81,563	7,829	71,106			1,425	640	6,462	1,930	
9 Delaware.....	24,218	3,505	19,145	1,175	3,263			1,762	35	13
10 Florida.....	1,308,032	149,628	1,065,277	2,650	11,030	3,243	1,189	199,395	17,377	11,521
11 Georgia.....	642,868	52,295	385,282	6,361	38,050		270	184,373	29,928	4,965
12 Idaho.....	542,921	107,401	516,668	1,913	6,593		1,000	17,085	1,675	
13 Illinois.....	2,267,943	159,542	2,110,576	22,756	61,330	7,359		38,207	18,684	31,787
14 Indian Territory.....	176,470	24,995	152,470	2,240	13,433			4,692	75	5,800
15 Indiana.....	6,307,809	402,789	5,695,582	73,742	247,445	10,482	1,328	81,080	25,050	246,842
16 Iowa.....	2,094,444	138,218	2,036,917	40	90	5,557		42,718	1,140	8,022
17 Kansas.....	4,875	850	4,600					175	100	
18 Kentucky.....	3,488,486	270,626	2,945,128	60,865	219,138	2,175	94	86,323	117,380	118,248
19 Louisiana.....	3,215,559	359,727	2,498,475	10,900	51,770	1,100		496,236	99,683	68,295
20 Maine.....	4,458,668	357,574	4,015,297	70,935	272,201	1,670	3,389	101,789	52,878	11,444
21 Maryland.....	490,944	57,274	431,830	6,878	28,553	3,050		17,798	9,713	
22 Massachusetts.....	1,860,287	90,707	1,795,043	1,524	6,324	14,540	50	33,872	9,653	805
23 Michigan.....	7,218,232	602,256	5,431,898	140,964	385,832	18,248	200	438,135	473,077	470,842
24 Minnesota.....	5,220,310	397,007	4,759,005	13,600	38,685	12,267	45	174,892	111,717	123,699
25 Mississippi.....	2,351,215	245,129	1,714,615	16,419	133,865	3,330		280,301	151,453	67,651
26 Missouri.....	1,528,408	153,482	1,029,356	73,299	265,808	7,836	50	112,012	11,712	101,634
27 Montana.....	83,031	9,488	49,760	789	2,264			27,837	3,170	
28 Nebraska.....	3,019	242	2,267			200		371	181	
29 New Hampshire.....	1,029,133	102,471	857,215	5,302	25,732	944	1,012	48,482	14,198	81,550
30 New Jersey.....	83,870	7,463	72,325	400	2,000	560	210	5,269	3,306	500
31 New Mexico.....	40,652	3,100	24,600					16,027	25	
32 New York.....	3,028,722	224,170	2,760,845	25,733	81,151	14,892	5,613	77,949	79,947	8,325
33 North Carolina.....	1,898,927	267,885	1,652,611	9,983	42,089	3,548	650	134,561	45,780	19,688
34 Ohio.....	2,904,935	192,363	2,590,860	41,120	159,927	15,395	903	72,610	20,041	45,199
35 Oregon.....	3,563,060	534,333	3,314,383	11,090	41,750		2,100	144,634	50,383	9,810
36 Pennsylvania.....	2,493,129	215,752	2,105,824	24,609	49,896	10,488	1,438	224,163	92,657	8,663
37 Rhode Island.....	4,947	420	3,300					1,417	230	
38 South Carolina.....	672,992	92,928	509,351	210	620	10	21	90,818	5,038	67,134
39 South Dakota.....	7,211	581	5,283					1,503	425	
40 Tennessee.....	5,545,727	375,412	3,879,643	201,609	1,108,461	9,648	558	168,620	306,703	72,094
41 Texas.....	808,179	72,289	417,996	5,268	12,352			295,927	81,624	280
42 Utah.....	51,146	8,225	49,690					1,456		
43 Vermont.....	1,046,884	115,561	976,450	910	4,815	350	412	41,258	14,919	8,680
44 Virginia.....	924,741	95,495	683,406	36,162	113,249	1,550	300	97,130	13,425	15,681
45 Washington.....	11,914,320	1,436,537	8,661,723	700,675	2,123,826		1,968	789,100	252,384	85,319
46 West Virginia.....	964,924	90,406	810,858	5,380	21,230	1,232		112,724	4,854	14,026
47 Wisconsin.....	6,877,469	614,759	6,058,925	79,474	274,650	23,094	730	379,832	31,601	108,637
48 Wyoming.....	8,858	1,225	7,225					1,398	225	10
49 All other states and territories.	90,655	1,975	90,000					655		

LUMBER AND TIMBER PRODUCTS.

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SUMMARY, BY STATES AND TERRITORIES: 1905—Continued.

MATERIALS USED—continued.						PRODUCTS.							
Planing mills and remanufactures.						Logging or timber camps.							
Total cost.	Rough lumber, purchased.		Mill supplies (cost).	All other materials (cost).	Freight (cost).	Aggregate value.	Total value.	Logs (scaled measurement) cut for use in sawmill (M feet B. M.). ¹	Logs (scaled measurement) cut for sale as logs.		Fence posts.		
	M feet B. M.	Cost.							M feet B. M.	Value.	Number.	Value.	
\$9,896,470	575,540	\$7,132,068	\$1,359,013	\$1,243,274	\$162,115	\$580,022,690	\$51,531,951	24,582,093	3,398,675	\$25,475,389	17,483,268	\$1,253,167	1
202,542	15,434	120,047	58,267	23,628	600	15,939,814	788,089	1,033,078	73,200	503,442	30,000	3,000	2
300			300			245,380		1,000					3
4,093			1,651	2,442		960,778	35,942	50,957					4
463,904	39,787	369,636	70,129	24,067	72	28,065,171	1,397,754	1,437,257	57,314	415,785	10,250	920	5
174,242	6,177	70,026	54,304	49,393	519	18,275,891	1,325,716	1,065,685	31,265	328,730	2,363,063	124,713	6
22,686	1,215	15,090	4,996	2,600		1,753,791	19,225	95,213	1,500	7,500			7
26,427	932	25,745	582	100		1,562,254	527,618	52,109	5,525	57,219	128,554	10,313	8
27,346	1,350	13,500	241	13,605		430,443	21,075	25,581			5,400	630	9
93,340	4,524	48,298	29,404	15,288	350	10,901,650	304,237	659,205	19,191	132,932	11,120	1,209	10
98,069	3,925	39,970	43,737	12,470	1,892	14,435,563	1,267,184	1,116,895	25,917	245,773	2,660	552	11
64,393	5,682	54,403	7,115	2,875		2,834,506	272,249	81,123	11,082	83,903	1,005,000	32,400	12
722,175	38,410	483,011	7,220	213,118	18,826	7,081,470	439,550	97,829	1,770	16,822	31,696	3,378	13
125			125			588,078	142,905	2,796		250	10,000	25	14
243,211	11,128	223,489	9,910	7,952	1,860	14,559,662	181,415	132,657	825	31,362	47,400	4,420	15
231,967	17,930	206,778	9,156	7,907	8,126	5,610,772	46,666	85,242	2,000	30,000	1,300	165	16
303,868	17,633	259,331	12,922	27,173	4,442	20,700							17
305,329	5,155	71,379	183,523	48,616	1,811	14,539,000	2,174,364	312,285	41,351	569,621	10,750	1,165	18
199,820	8,495	171,990	16,248	10,082	1,500	35,192,374	1,868,346	1,981,921	112,329	683,941			19
87,157	5,572	73,897	3,699	9,561		17,937,683	1,830,031	494,678	126,368	1,387,807	10,400	1,003	20
91,239	5,186	81,534	4,287	3,428	1,990	2,750,393	172,016	101,692			13,978	1,924	21
496,557	37,427	369,612	48,738	44,358	33,849	4,903,714	313,360	93,644	10,391	105,484	12,125	1,587	22
219,793	9,229	156,688	49,392	13,413	300	40,569,335	4,883,022	1,328,328	166,068	1,562,500	6,505,427	448,676	23
210,611	32,862	105,744	69,239	34,401	1,227	33,183,309	5,475,997	1,084,539	311,220	3,606,177	3,928,997	262,587	24
181,616	13,144	119,551	33,016	24,720	4,329	24,035,539	1,358,441	1,483,502	9,329	92,313	41,200	2,120	25
15,620			11,500	4,120		10,903,783	547,874	503,981	32,055	166,777	44,870	3,024	26
56,809	4,000	49,711	4,043	1,555	1,500	3,024,674	245,560	197,043	21,538	102,100			27
20,010	1,716	19,455	435	120		19,624		750					28
13,725	600	7,200	6,275	250		7,519,431	1,047,787	321,418	43,772	407,215	8,250	805	29
396,342	18,525	332,595	12,731	50,471	545	1,116,884	167,243	33,135		11,010	36,791	7,476	30
450,328	39,389	376,836	37,982	30,765	4,745	1,315,364	14,817	76,944			1,000	250	31
372,700	16,906	338,249	8,603	21,906	3,942	13,310,413	901,915	341,849	51,692	462,428	110,384	12,112	32
146,768	4,990	46,938	48,666	49,331	1,833	15,731,379	250,478	1,040,148	19,892	127,739	3,230	498	33
251,764	10,557	195,932	29,208	25,224	1,400	12,567,992	333,310	252,644	10,686	175,342	285,993	39,420	34
						12,483,908	1,484,969	435,530	223,337	1,377,952	45,015	2,821	35
						31,642,390	3,590,563	1,475,674	73,298	707,311	323,034	29,431	36
						401,170	176,365	12,588	260	2,300	23,400	3,965	37
91,767	7,285	63,920	25,405	1,610	832	6,791,451	142,551	467,859	4,196	35,817	1,627	244	38
140			140			275,190	63,080	12,757					39
828,507	50,383	727,761	29,403	54,291	17,052	21,580,120	2,049,253	499,949	11,942	219,124	757,098	96,395	40
234,696	8,062	64,733	129,913	40,050		16,278,240	1,280,443	1,235,667	27,138	182,446	235,950	26,780	41
78			78			133,044	400	2,872	42	400			42
323,157	17,583	246,974	17,717	57,916	550	5,888,441	81,755	199,183	1,725	17,058	22,900	2,915	43
478,217	40,033	438,846	16,810	15,407	7,154	13,040,860	478,935	817,229	24,050	193,226	29,711	4,874	44
307,959	4,563	52,778	146,587	103,202	5,392	49,572,512	9,989,766	1,502,874	1,624,815	9,588,517	82,100	4,185	45
310,075	12,744	260,430	8,580	6,528	34,537	14,933,472	1,068,753	705,106	29,518	258,430	39,512	6,358	46
1,126,733	57,007	829,991	106,471	189,331	940	44,395,766	2,443,487	1,612,398	190,411	1,559,596	1,272,883	110,827	47
225			225			426,433	308,723	5,990					48
40			40			292,933	18,722	11,289					49

¹ For total value of saw logs produced, see Table G.

MANUFACTURES.

TABLE 30.—LUMBER AND TIMBER PRODUCTS—DETAILED

STATE OR TERRITORY.	PRODUCTS—continued.											
	Logging or timber camps—Continued.											
	Hemlock bark.		Oak bark.		Railway ties.		Telegraph and telephone poles.		Charcoal.		All other products (value).	Amount received for contract work.
	Cords.	Value.	Cords.	Value.	Number.	Value.	Number.	Value.	Bushels.	Value.		
1 United States ...	391,691	\$2,347,463	69,873	\$470,722	36,445,308	\$12,413,793	2,080,482	\$2,383,275	1,587,443	\$112,401	\$4,152,166	\$2,923,575
2 Alabama.....					945,404	242,605	1,300	705			37,137	1,200
3 Alaska.....												
4 Arizona.....					87,446	35,942						
5 Arkansas.....					2,486,754	804,691					19,933	156,425
6 California.....			16,695	189,353	1,363,440	340,154	4,919	6,950			166,511	169,305
7 Colorado.....					15,500	5,975					750	5,000
8 Connecticut.....	550	2,820			633,960	240,510	61,538	160,534	6,000	600	32,110	23,512
9 Delaware.....					10,780	6,465	800	1,825	60,000	4,775	7,380	
10 Florida.....					342,813	119,772	140	130	2,000	500	48,854	840
11 Georgia.....			12	96	2,702,493	899,764	4,194	6,735			107,944	6,320
12 Idaho.....					50,000	12,900	84,207	141,446			1,600	
13 Illinois.....					676,840	274,552	91	83			141,515	3,200
14 Indian Territory.....					300,000	132,880						
15 Indiana.....			118	900	357,670	126,318	80	40			16,975	1,400
16 Iowa.....					26,000	14,400					2,101	
17 Kansas.....												
18 Kentucky.....	180	1,120	1,943	12,424	3,765,777	1,461,718	10,200	10,335			89,181	28,800
19 Louisiana.....					1,173,600	388,644	55,000	68,600			218,218	508,943
20 Maine.....	19,080	99,548	65	260	162,382	43,567	19,281	26,288	25,300	2,024	248,148	21,886
21 Maryland.....	9,365	54,765	12,625	10,640	142,345	56,237	2,840	2,931	43,600	3,070	35,341	7,108
22 Massachusetts.....	738	4,790			263,275	84,763	3,284	4,735	3,000	500	44,358	67,143
23 Michigan.....	93,808	601,494			2,969,436	936,310	821,551	830,841	250,000	16,800	306,582	179,619
24 Minnesota.....					1,108,633	386,111	347,125	275,030			230,309	715,783
25 Mississippi.....					2,812,000	1,125,308	1,500	900			137,800	
26 Missouri.....					1,110,028	322,750	25,300	18,030	37,614	2,633	30,660	4,000
27 Montana.....					166,791	48,230	120,000	40,000				55,230
28 Nebraska.....												
29 New Hampshire.....	3,645	22,570	56	380	85,856	30,221	3,094	6,635	1,000	150	464,206	115,605
30 New Jersey.....			140	626	77,075	32,011	12,675	61,475			53,845	800
31 New Mexico.....					71,083	11,860	1,379	2,707				
32 New York.....	23,650	141,949	270	2,220	164,175	65,478	16,726	39,385			167,028	11,315
33 North Carolina.....	129	674	753	4,386	105,500	32,836	3,590	5,990			13,113	65,242
34 Ohio.....			960	7,465	268,203	92,838	2,800	5,000			8,445	4,800
35 Oregon.....					85,700	21,527	12,553	20,614			62,055	
36 Pennsylvania.....	121,103	755,693	15,956	121,320	1,796,276	712,486	60,375	126,710	992,184	63,774	780,213	293,625
37 Rhode Island.....	150	900			217,200	94,134	10,730	34,200	45,100	5,811	35,055	
38 South Carolina.....					167,476	47,863	1,220	1,196			28,606	28,825
39 South Dakota.....					96,000	37,918					15,872	
40 Tennessee.....	2,537	14,601	4,540	27,470	3,785,126	1,437,948	67,240	68,967			170,548	14,200
41 Texas.....					3,974,601	1,038,293	40,207	24,924			8,000	
42 Utah.....												
43 Vermont.....	5,492	33,369			7,700	2,376	1,263	838	121,645	11,764	13,335	100
44 Virginia.....	265	1,248	7,706	39,209	403,932	146,194	8,971	20,404			57,800	15,980
45 Washington.....					20,700	4,160	22,224	28,007			146,691	218,206
46 West Virginia.....	55,583	328,854	8,034	53,973	281,028	103,940	22,484	57,332			131,008	128,858
47 Wisconsin.....	55,416	283,068			337,649	96,915	229,601	282,753			39,723	70,605
48 Wyoming.....					787,166	275,507					33,216	
49 All other states and territories.....					39,495	18,722						

LUMBER AND TIMBER PRODUCTS.

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SUMMARY, BY STATES AND TERRITORIES: 1905—Continued.

PRODUCTS—continued.												
Sawmills.												
Total value.	Sawed lumber used or dressed in planing mill ¹ (M feet B. M.).	Sawed lumber sold (or to be sold) rough.		Staves.		Headings.		Hoops.		Shingles.		
		M feet B. M.	Value.	Thousands.	Value.	Sets.	Value.	Thousands.	Value.	Thousands.	Value.	
\$371,282,413	10,325,370	21,904,736	\$288,935,200	2,464,689	\$19,082,641	125,353,528	\$7,436,259	546,879	\$3,159,973	14,393,352	\$23,712,609	1
10,191,148	409,526	806,082	8,992,710	30,828	441,620	703,860	37,857	1,625	13,000	112,093	207,101	2
210,176	2,424	5,550	203,699							926	6,477	3
721,892	10,147	45,454	665,835									4
16,642,247	748,761	919,863	11,610,179	257,730	2,772,964	10,928,596	1,166,701	22,876	161,676	269,706	547,301	5
11,975,177	257,406	802,841	10,453,148	5,379	28,223	452,191	20,419			737,589	874,285	6
1,250,087	30,262	109,832	1,148,929							950	2,875	7
953,667	3,259	46,852	751,624			47,500	4,750			6,225	17,843	8
306,040	3,365	25,196	276,436	3,068	8,954	10,000	200			350	2,200	9
8,332,819	183,701	623,680	7,525,016	8,516	47,641	232,900	14,121			188,652	451,884	10
10,481,738	224,234	892,163	9,459,349	21,432	112,897	647,051	36,446	500	1,125	364,378	672,572	11
1,071,676	101,808	93,139	903,974							41,972	66,044	12
4,368,597	54,946	144,162	2,434,264	126,096	744,716	3,217,858	158,418	14,542	124,533	12,408	28,393	13
432,773	590	29,110	380,138	5,599	33,680					300	750	14
13,561,263	19,925	476,948	10,521,893	158,526	707,110	5,581,957	297,767	52,004	364,215	3,660	7,665	15
2,333,242	166,240	112,496	2,050,972	800	4,800					35,404	68,347	16
20,700		915	15,075									17
11,031,945	34,307	476,226	8,453,767	101,397	1,440,873	5,365,020	242,609	22,626	126,104	43,775	88,655	18
17,043,378	1,318,628	1,135,042	14,413,281	36,380	289,945	2,530,475	128,980			801,866	1,633,958	19
13,289,468	138,214	653,189	9,399,818	80,898	373,193	3,953,612	161,181	721	3,892	467,726	955,900	20
2,177,503	14,625	142,240	1,889,210	18,664	75,937	71,500	2,985	395	3,120	6,677	29,761	21
3,856,833	23,790	163,234	3,319,890	3,785	17,497	386,000	17,373	2,231	8,830	9,186	24,585	22
30,768,916	264,875	1,555,683	21,765,967	279,138	1,745,786	20,760,572	889,269	148,720	1,023,451	1,285,175	2,368,071	23
14,249,044	778,506	795,595	11,764,974	7,450	46,000	1,462,260	76,138	1,000	8,300	290,127	423,940	24
16,188,480	517,133	1,193,318	14,743,402	36,580	529,510	3,824,012	456,899			50,654	112,301	25
8,236,611	169,045	371,327	4,984,700	197,271	1,362,111	15,126,397	969,742	38,907	227,357	74,036	153,728	26
1,256,654	111,406	107,864	1,157,299							4,586	7,827	27
19,624		1,020	15,617									28
5,680,397	40,156	361,795	4,789,187	21,703	106,234	2,107,100	48,387	4,398	32,390	16,027	35,433	29
876,135	3,511	31,812	619,972							31,411	145,637	30
1,030,964	18,399	62,514	877,286							950	1,900	31
9,685,422	102,227	394,054	6,601,327	69,226	454,448	4,499,618	265,141	1,430	19,860	53,241	120,791	32
10,969,304	296,253	979,297	9,819,281	13,637	55,298	846,000	39,200	2,000	10,000	192,189	565,709	33
10,639,422	24,906	317,424	7,183,960	248,370	1,658,598	4,077,888	174,364	204,822	837,095	2,820	9,340	34
5,050,712	427,374	555,013	4,523,891	6,000	47,000	450,000	23,000	45	1,350	117,511	174,883	35
26,146,407	155,328	1,524,920	21,595,248	256,759	1,354,600	9,275,464	475,026	1,625	12,375	111,270	271,144	36
224,805		14,178	207,116	600	8,000					620	1,838	37
4,549,576	164,490	407,910	4,194,698	1,050	6,900	23,685	1,607	300	1,560	71,736	186,296	38
169,047	1,595	11,679	162,731							260	680	39
16,818,334	65,228	657,484	11,109,593	219,466	2,786,108	5,516,317	783,984	23,079	157,822	34,938	61,045	40
8,657,201	1,061,538	342,345	3,323,403	3,900	118,000	70,000	8,000			75,926	133,428	41
125,589	415	10,553	115,569							550	1,180	42
2,881,646	145,548	161,256	2,352,071	12,450	66,171	87,500	2,395	15	100	16,290	34,852	43
9,581,491	154,574	751,173	8,169,308	95,648	502,063	9,811,816	362,164	40	600	30,338	187,422	44
25,463,282	1,046,724	1,421,903	12,280,710	30,789	112,231	1,500,000	44,000	700	4,900	8,357,457	12,203,631	45
12,448,284	75,703	686,287	10,960,773	44,573	655,208	651,680	37,720			24,630	62,666	46
24,772,822	951,838	1,466,089	20,432,314	60,981	368,325	11,134,699	489,416	2,278	16,318	445,698	759,031	47
90,664	1,440	5,990	83,260							1,071	3,240	48
249,211	1,000	12,039	232,336									49

¹ For total value of sawed lumber produced, see Table 11.

MANUFACTURES.

TABLE 30.—LUMBER AND TIMBER PRODUCTS—DETAILED

STATE OR TERRITORY.	PRODUCTS—continued.									
	Sawmills—Continued.						Planing mills.			
	Laths.		Veneers.		All other products (value).	Amount received for custom sawing.	Total value.	Finished lumber, flooring, ceiling, etc. (value).	Remanufactured products (value).	Amount received for custom planing, etc.
	Thousands.	Value.	Square feet.	Value.						
1 United States.....	2,647,847	\$5,435,968	988,537,777	\$6,095,207	\$11,383,077	\$6,041,479	\$157,208,326	\$137,591,563	\$19,134,805	\$431,958
2 Alabama.....	24,569	42,045	2,200,000	20,000	335,244	101,571	4,960,577	4,795,689	160,523	4,365
3 Alaska.....							35,204	28,204	7,000	
4 Arizona.....	5,635	13,967			42,090		202,944	202,944		
5 Arkansas.....	52,594	89,013	34,013,000	77,600	175,370	41,443	10,025,170	9,263,409	758,536	3,165
6 California.....	16,962	17,266			517,429	64,407	4,974,998	3,512,830	1,437,134	25,034
7 Colorado.....	17,171	45,182			47,410	5,691	484,479	380,679	100,800	3,000
8 Connecticut.....	475	2,115			127,732	49,603	80,969	47,985	31,504	1,480
9 Delaware.....	320	765	1,320,000	6,980	4,610	5,895	103,328	19,050	84,028	250
10 Florida.....	20,975	38,756			240,700	14,701	2,264,594	2,025,540	234,500	4,554
11 Georgia.....	28,569	39,373	6,600,000	45,798	58,507	55,611	2,686,641	2,611,850	72,150	2,641
12 Idaho.....	16,137	40,696			12,632	48,330	1,490,581	1,469,962	20,000	619
13 Illinois.....	16,572	51,262	100,953,446	621,130	153,320	52,561	2,273,323	612,933	1,659,092	1,298
14 Indian Territory.....					14,080	4,125	12,400	2,700	8,500	1,200
15 Indiana.....	2,960	8,321	90,774,655	1,015,586	435,431	203,275	816,984	598,538	202,756	15,690
16 Iowa.....	58,807	157,507			39,778	11,838	3,230,864	2,839,340	391,344	180
17 Kansas.....					1,850	3,775				
18 Kentucky.....	15,837	39,875	40,186,626	179,948	195,241	264,873	1,332,691	994,253	330,215	8,223
19 Louisiana.....	151,403	294,825	12,300,000	51,499	213,433	17,457	16,280,650	15,973,627	256,923	50,200
20 Maine.....	237,173	533,511	45,968,150	143,424	1,478,575	239,974	2,818,184	1,540,811	1,262,416	14,957
21 Maryland.....	13,616	26,364	10,000,000	90,000	29,620	30,506	400,820	236,055	160,480	4,285
22 Massachusetts.....	4,877	14,209	15,692,941	114,549	172,400	167,500	733,521	488,843	235,327	9,351
23 Michigan.....	236,343	496,187	157,685,000	769,816	1,135,451	574,908	4,917,397	3,943,395	928,320	45,682
24 Minnesota.....	308,843	785,965			181,164	962,563	13,458,268	13,042,434	387,681	28,153
25 Mississippi.....	60,410	86,836	11,625,000	98,000	102,914	58,618	6,488,618	6,136,675	345,043	6,900
26 Missouri.....	22,509	37,865	27,423,985	294,858	155,959	50,291	2,119,298	2,000,720	109,327	9,251
27 Montana.....	15,648	26,333			12,120	53,075	1,522,460	1,374,655	147,007	708
28 Nebraska.....					1,305	2,702				
29 New Hampshire.....	19,082	51,277	633,000	2,752	412,572	202,165	791,247	425,494	352,572	13,181
30 New Jersey.....	12,977	37,150			45,367	28,009	73,506	66,006	4,100	3,400
31 New Mexico.....	12,654	34,615			116,563	600	269,583	229,125	40,458	
32 New York.....	55,233	140,604	122,134,335	718,026	862,520	502,705	2,723,076	2,116,530	580,106	26,440
33 North Carolina.....	31,907	47,899	22,622,313	232,620	82,173	117,124	4,511,597	4,273,544	230,087	7,966
34 Ohio.....	8,671	21,734	21,892,644	201,844	451,025	301,462	1,395,260	918,948	451,240	25,072
35 Oregon.....	76,915	127,018			140,174	13,396	5,948,227	5,188,860	756,242	3,125
36 Pennsylvania.....	219,630	521,718	16,800,000	34,600	643,994	237,702	2,905,420	2,553,257	328,342	23,821
37 Rhode Island.....					3,676	4,175				
38 South Carolina.....	20,177	32,776			39,221	86,518	2,099,324	2,030,469	50,102	18,753
39 South Dakota.....	955	3,107			1,404	1,125	43,063	42,648		415
40 Tennessee.....	21,215	45,669	120,817,500	620,876	1,063,547	189,690	2,712,533	1,691,430	1,008,043	13,060
41 Texas.....	9,567	9,738	1,600,000	6,400	51,462	6,770	11,340,596	11,280,911	51,460	8,225
42 Utah.....	929	2,293			1,652	4,895	7,055	6,370		185
43 Vermont.....	18,649	53,577	8,000,000	23,500	248,799	100,181	2,925,040	2,097,739	811,993	15,308
44 Virginia.....	37,994	74,773	5,000,000	27,250	131,095	126,816	2,980,434	1,620,499	1,353,553	6,382
45 Washington.....	229,720	380,100	81,000	1,296	383,814	52,600	14,119,464	13,330,388	767,204	21,872
46 West Virginia.....	66,325	137,088	17,500,000	55,000	214,656	325,173	1,416,435	1,326,860	83,180	6,395
47 Wisconsin.....	416,282	824,249	94,664,182	641,855	588,053	653,261	17,179,457	14,197,858	2,935,517	46,082
48 Wyoming.....	560	2,345				1,819	27,046	26,546		500
49 All other states and territories.....					16,875		25,000	25,000		

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POWER.																
Number of establishments reporting.	Total horse-power.	Owned.										Rented.			Furnished to other establishments (horse-power).	
		Engines.				Water wheels.		Water motors.		Electric motors.		Other power (horse-power).	Electric motors.			Other kind (horse-power).
		Steam.		Gas and gasoline.												
		Number.	Horse-power.	Number.	Horse-power.	Number.	Horse-power.	Number.	Horse-power.	Number.	Horse-power.	Number.	Horse-power.	Number.		Horse-power.
18,203	1,504,693	23,802	1,377,722	174	3,735	2,496	103,657	1	20	472	13,542	2,332	34	1,098	2,587	3,165
572	50,991	888	50,026	2	10	22	580			6	155	220				30
5	335	6	310			1	25									3
2,223	19	2,223	2,223													500
836	73,126	1,212	72,436	3	9	2	42			8	639		2	95	150	4
288	51,381	553	49,373			28	1,295			16	468					5
86	5,436	139	5,256									180				7
102	3,829	100	2,840	1	15	39	914						1	30	30	8
74	2,274	78	2,274													9
178	31,771	404	29,751							41	1,845		1	175		10
695	44,323	1,066	43,856			8	422			3	45					11
91	9,607	123	9,287			4	105			1	80		2	35	100	12
265	16,776	342	16,436	3	157					9	178		1	5		13
39	1,877	48	1,877													12
769	38,858	879	38,037	6	144	10	176			15	211	15	2	50	225	15
49	8,955	78	8,820			3	55			4	50	30				16
4	216	4	216													17
821	36,695	1,003	35,567	5	88	6	255			27	683	47			55	18
357	80,518	768	79,004	2	24	1	20			12	535	935				19
716	69,300	479	34,755	23	486	701	33,161	1	20	12	213		1	50	615	432
201	8,492	255	8,457							2	35					20
283	15,283	210	9,506	5	86	196	5,618			7	53				20	102
602	96,821	1,125	91,932	11	162	44	3,420			40	1,207				100	50
192	49,175	330	48,704	1	20	1	30			4	421					23
610	64,715	882	64,362			1	30			8	318				5	120
365	23,342	522	22,937	2	18	2	32			6	74	281				25
38	7,285	51	6,742			5	543									27
4	210	5	180			1	30									28
336	24,057	270	14,704													

TIMBER REGIONS OF THE UNITED STATES.

By HENRY GANNETT, Geographer, United States Geological Survey.

/The country, considered in a broad way, naturally separates itself into certain timber regions, as follows:

(1) The Northeastern states, including New England, New York, New Jersey, and Pennsylvania. The northeastern part of this region is forested with conifers, mainly white pine, spruce, and hemlock, becoming mixed in the southern part with hard woods, while in southern New Jersey yellow pines are found.

(2) The Lake states—Michigan, Wisconsin, and Minnesota—whose northern portions are, or were, forested mainly with white pine, merging into hard woods in the southern parts.

(3) The Southern states, which are characterized by a broad belt of yellow pine of several species, stretching from southern New Jersey, southwest and west, to Texas and Indian Territory, while the lowlands on the coast and the Mississippi bottoms are covered with cypress, and the mountain regions are mainly covered with hard woods.

(4) The Central states, characterized by a growth of hard woods, with a varying admixture of conifers.

(5) The Rocky Mountain region, where the timber is in the main confined to the mountains and consists almost entirely of conifers of several species, but largely of yellow pine.

(6) The Pacific Coast region, that is, those parts of Washington, Oregon, and California lying west of the Cascade Range and the Sierra Nevada. These forests, which are by far the heaviest in the United States, if not in the world, consist almost entirely of conifers, the prevalent tree in Washington and northern Oregon being the Douglas fir, with some cedar, spruce, and hemlock; while in the southern part of the latter state yellow and sugar pine appear and increase southward. In California yellow pine is the predominating tree, with some sugar pine, incense cedar, and several species of fir, and with *Sequoia gigantea* in small groves in the southern Sierra Nevadas; while the redwood is found in a narrow strip along the coast north of San Francisco bay.

In Table 1 are presented the statistics of timber lands and cut over and burnt lands owned by lumbermen, as reported at the census of 1905.

The table shows the amount of capital reported as invested, by states, geographic divisions, and for the United States in timber lands and cut over and burnt

lands, and also in the same detail the stand, in millions of feet, board measure, of merchantable timber distributed by species. The total thus reported in the United States, 257,122.6 million feet, is probably more than one-tenth the amount now standing in the country.

The total area covered by these holdings, 57,842 square miles, is about one-seventeenth of the estimated wooded area of the country. By "wooded area" is not meant the area covered by merchantable forests, which is quite a different matter, and one concerning which little is known.

The amount given for Michigan represents probably more than one-half the timber yet remaining in the state. That reported for Wisconsin is about one-seventh of that estimated to be still standing, which, according to the estimate of Dr. Filibert Roth, is 45 billion feet. That for Minnesota is about one-fifth the amount estimated for the state by General Andrews, chief fire warden, who estimated in 1896 that the state contained 24,790 million feet of merchantable timber. The states of Oregon, Washington, and South Dakota have been canvassed as to their timber supplies by the United States Geological Survey. The mills of Oregon report a stand of 13,580.8 million feet, board measure, as owned, while cruisions in the state indicate its total stand of timber to be 215,000 million feet, or more than sixteen times as much. The estimate of the stand in Washington is 195,688 million feet, of which 52,834.4 million feet, between one-third and one-fourth, is reported. In South Dakota the timber is practically all in the Black Hills, in the western part of the state, and is estimated at 1,502 million feet. Of this 9 million only, or a little over one-half of 1 per cent, is reported. Nearly all this body of timber is contained within a Federal forest reserve. The above are the only estimates of the total stands of states available for comparison with the returns from the mill companies, and, as is seen, they afford little basis for discussion. They serve to demonstrate only that, as was stated above, the average stand of the lands reported is much greater than that of the states as a whole, but how much greater does not appear. They show, moreover, that in old lumber regions like Michigan the lands are reported much more fully than in newer ones, such as the Pacific Coast states.

TABLE 1.—TIMBER LANDS, WITH STAND OF MERCHANTABLE TIMBER IN MILLIONS OF FEET, BOARD MEASURE,

	STATE OR TERRITORY.	CAPITAL INVESTED.		
		Total.	Timber lands.	Cut or burnt over lands.
1	United States.....	\$451,762,922	\$427,720,927	\$24,041,995
2	Northeastern group.....	59,704,907	56,610,276	3,094,631
3	Maine.....	9,103,107	8,748,038	355,069
4	New Hampshire.....	12,142,490	11,392,452	750,038
5	Vermont.....	5,143,523	4,994,770	148,753
6	Massachusetts.....	1,159,858	984,983	174,875
7	Rhode Island.....	84,165	74,355	9,810
8	Connecticut.....	240,745	222,520	18,225
9	New York.....	6,835,797	6,483,652	352,145
10	Pennsylvania.....	24,719,072	23,468,111	1,250,961
11	New Jersey.....	136,745	112,345	24,400
12	Delaware.....	139,405	129,050	10,355
13	Lake group.....	85,998,544	79,868,869	6,129,675
14	Michigan.....	29,779,597	28,390,184	1,389,413
15	Wisconsin.....	28,973,661	24,854,763	4,118,898
16	Minnesota.....	27,245,286	26,623,922	621,364
17	Southern group.....	188,640,775	179,233,888	9,406,887
18	Maryland.....	1,257,650	1,214,120	43,530
19	Virginia.....	5,259,208	5,002,132	257,076
20	North Carolina.....	12,219,054	11,971,459	247,595
21	South Carolina.....	7,999,291	7,874,933	124,358
22	Georgia.....	9,674,390	9,033,114	641,276
23	Florida.....	13,297,830	12,676,237	621,593
24	Alabama.....	14,074,377	13,335,453	738,924
25	Mississippi.....	29,069,010	27,105,946	1,963,064
26	Louisiana.....	53,321,791	51,579,154	1,742,637
27	Arkansas.....	29,500,755	27,629,724	1,871,031
28	Texas.....	12,967,419	11,811,616	1,155,803
29	Central group.....	27,052,015	25,875,428	1,176,587
30	Ohio.....	490,835	462,772	28,063
31	Indiana.....	357,553	341,853	15,700
32	Illinois.....	843,060	813,790	29,270
33	West Virginia.....	11,999,891	11,577,457	422,434
34	Kentucky.....	3,677,607	3,621,420	56,187
35	Tennessee.....	6,112,087	5,962,045	150,042
36	Missouri.....	3,570,982	3,096,091	474,891
37	Pacific group.....	77,643,817	73,539,377	4,104,440
38	California.....	32,345,109	30,884,180	1,460,929
39	Oregon.....	8,697,139	7,319,266	1,377,873
40	Washington.....	36,601,569	35,335,931	1,265,638
41	Miscellaneous group.....	12,722,864	12,593,089	129,775
42	Arizona.....	218,975	218,975	.....
43	Colorado.....	363,505	319,065	44,440
44	Idaho.....	¹ 3,920,965	3,909,815	² 11,150
45	Indian Territory.....	24,300	24,300	.....
46	Iowa.....	31,025	16,775	14,250
47	Kansas.....	1,000	1,000	.....
48	Montana.....	5,911,911	5,890,581	21,330
49	Nebraska.....	1,250	1,250	.....
50	New Mexico.....	2,149,750	2,117,750	32,000
51	South Dakota.....	¹ 26,060	² 24,200	1,860
52	Utah.....	5,745	3,125	2,620
53	Wyoming.....	68,378	66,253	2,125

¹ Less than one-tenth of a million.² Includes \$4,000 cut or burnt over lands in Nevada.

LUMBER AND TIMBER PRODUCTS.

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AND CUT AND BURNT OVER LANDS, REPORTED AS OWNED BY LUMBERMEN, BY STATES AND TERRITORIES: 1905.

QUANTITY OF STANDING TIMBER, IN MILLIONS OF FEET B. M.											
Total.	Yellow pine.	Douglas fir.	Hemlock.	Redwood.	White pine.	White oak.	Spruce.	Maple.	Cypress.	Cedar.	All other.
257,122.6	98,046.2	61,383.0	15,159.2	13,298.7	12,803.8	11,151.0	10,851.0	9,469.7	8,847.4	5,777.2	10,335.4
15,069.5	71.5	3.1	5,881.8		1,296.8	510.6	6,469.3	243.7	(1)	13.7	579.0
3,850.2		3.1	1,069.4		266.3	0.3	2,458.8	2.7		2.7	46.9
2,081.5			15.3		426.4	3.8	1,565.3	41.0			29.7
1,787.7			116.0		8.2		1,416.7	19.5			227.3
242.4			3.2		211.1	9.1	6.7	0.5		0.1	11.5
19.3					5.6	9.2					4.5
51.0			3.0		9.8	21.8					16.4
1,802.9			329.1		120.4	21.0	1,021.2	128.9			182.3
5,177.8	40.0		4,345.8		249.0	433.9	0.6	51.1			57.4
23.7	0.7					9.1				10.9	3.0
33.2	30.8					2.4			(1)		
30,198.4			6,762.4		11,012.5	166.8	66.3	9,212.0		704.7	2,273.7
17,906.8			3,528.5		2,618.2	6.3	63.2	9,142.9		658.2	1,889.5
6,917.8			3,233.9		3,087.6	148.4		69.1		9.0	369.8
5,373.8					5,306.7	12.1	3.1			37.5	14.4
90,107.6	70,982.1		513.9			6,194.8	275.0	10.5	8,711.7	63.0	3,356.6
362.3	65.1		2.4			276.0		10.0			8.8
2,573.5	1,048.9					186.5	275.0		4.6		158.5
6,344.2	5,330.3		141.5			329.2			39.1	51.5	452.6
4,337.3	3,363.1					194.0			727.7	0.3	102.2
4,505.5	3,690.3		370.0			23.5			390.2		31.5
8,626.7	7,784.4								842.3		
7,664.9	6,698.0					498.4		0.5	33.0		435.0
13,209.9	11,618.9					1,133.3			221.3		236.4
21,901.7	15,246.4					79.4			6,276.8		299.1
14,020.1	9,071.6					3,150.7			176.7		1,621.1
6,511.5	6,165.1					323.8				11.2	11.4
11,428.6	355.5		1,969.1		494.5	4,277.9	1,048.3	3.5	135.7	2.1	3,142.0
112.4					51.5	39.5					21.4
59.0					0.5	27.5		1.5			29.5
183.2						68.1		1.0			113.5
5,169.8	45.0		1,666.0		44.0	1,921.5	1,048.3	1.0	0.6		444.0
1,220.2	62.6		167.0			549.4			1.4	(1)	439.8
2,353.6	100.7		136.1			1,184.0			1.2	2.1	969.5
2,290.4	147.2				398.5	487.9			132.5		1,124.3
98,952.5	19,894.1	56,867.6	32.0	13,298.7			2,963.3			4,983.7	913.1
32,537.3	17,044.5	1,270.8		13,298.7			10.2				913.1
13,580.8	1,083.0	9,552.2					2,682.1			263.5	
52,834.4	1,766.6	46,044.6	32.0				271.0			4,720.2	
11,366.0	6,743.0	4,512.3				0.9	28.8			10.0	71.0
204.5	204.6										
210.8	188.0						22.8				
4,211.3	4,209.3									2.0	
3.5											3.5
1.7						0.8					0.9
0.1						0.1					
5,050.2	463.9	4,512.3								8.0	66.0
0.5											0.5
1,607.6	1,601.6						6.0				
9.2	9.1										0.1
2.9	2.9										
63.6	63.6										

*Includes \$1,000 timber lands in North Dakota.

*Includes one-tenth of a million in North Dakota.

WHITE PINE.

This, the most valuable of the common species of timber, has its home in northern New England and in the northern half of the Lake states—Michigan, Wisconsin, and Minnesota. Much of New York, especially the Adirondack region, contained white pine originally, but from this state it has almost entirely disappeared. Its habitat stretches southward, following the line of the Appalachian mountains down through the higher parts of Pennsylvania, well into West Virginia, in which state there are still considerable bodies of this timber, and it is found in small amount in the high mountains of North Carolina.

White pine, formerly the most abundant tree in New England, has become, by persistent lumbering through many decades, greatly reduced in quantity. In Maine the holdings of lumbermen, which probably include most of the remaining stand of this species, amount to only a trifle more than a quarter of a billion feet. In New Hampshire the holdings reported amount to 87 millions, or one-fourth of those of Maine. In Vermont they are trifling, and in Massachusetts 48 millions, all of which is doubtless second or third growth. The holdings reported from New York are still less than those of Massachusetts, being only 37 millions. In Pennsylvania the holdings reported are only 77 million feet.

In West Virginia, which is known to contain quite a body of untouched white pine, situated in the most elevated region of the state, there are only 10 millions reported by the lumber companies.

The greatest bodies of white pine in the country are still to be found in the northern portion of the Lake states, the upper half of the lower peninsula of Michigan, the entire area of the upper peninsula, and in general terms the northern halves of the states of Wisconsin and Minnesota. Before lumbering commenced, these regions were covered with a fairly dense stand of almost pure white pine, merging near the lower borders into hard-wood forests. Lumbering operations have progressed westward from the East. The lower peninsula of Michigan has been nearly depleted of this timber; the upper peninsula has been cut to a large extent; while Wisconsin has suffered less, and Minnesota still less, from the operations of lumbermen. In these three states it is estimated that the enormous amount of 200,000 millions of feet, board measure, of white pine has been cut since 1873, as is shown by Table 2, extracted from the American Lumberman.

Of the stand of white pine remaining, we have estimates in Wisconsin and Minnesota, but none in Michigan later than that of Professor Sargent made in 1880, when he estimated that the amount of pine standing in Michigan was 35 billion feet, at the same

time placing that of Wisconsin at 41 billion feet. In 1897 an estimate was made of the standing timber of Wisconsin by Dr. Filibert Roth, of the United States Department of Agriculture, in cooperation with the geological survey of Wisconsin. He found 15 billion feet of white pine standing in the state at that time. Several estimates of the stand in Minnesota have been made, the earliest one which comes under my notice having been made by Professor Sargent in connection with the United States census of 1880. His figures gave a total of 8,170 million feet then standing. In 1896 Gen. C. C. Andrews, state fire warden, estimated the amount at 16,849 million feet, or a little more than double that made by Sargent sixteen years earlier. Three years later, in 1899, Mr. H. B. Ayres, acting for the United States Geological Survey, estimated that there was standing 11,190 million feet, his estimate agreeing closely with that of General Andrews. There is probably 50 billion feet of white pine standing in the country. The total amount reported as owned by lumbermen is 12,803.8 million feet.

TABLE 2.—Cut of white pine in Michigan, Wisconsin, and Minnesota: 1873 to 1905.

YEAR.	Total cut (M feet B. M.).	YEAR.	Total cut (M feet B. M.).
Total.....	200,998,454	1889.....	8,183,048
1905.....	3,663,963	1888.....	8,254,291
1904.....	4,220,917	1887.....	7,757,917
1903.....	4,791,852	1886.....	7,425,368
1902.....	5,294,395	1885.....	7,053,095
1901.....	5,336,448	1884.....	7,936,033
1900.....	5,419,333	1883.....	7,624,790
1899.....	6,056,508	1882.....	7,552,150
1898.....	6,155,300	1881.....	6,768,857
1897.....	6,233,454	1880.....	5,651,295
1896.....	5,725,763	1879.....	4,806,943
1895.....	7,050,669	1878.....	3,629,473
1894.....	6,821,516	1877.....	3,595,333
1893.....	7,326,264	1876.....	3,879,046
1892.....	8,594,223	1875.....	3,968,553
1891.....	7,879,948	1874.....	3,751,308
1890.....	8,597,623	1873.....	3,993,780

SPRUCE.

Spruce in the Eastern states is found mainly in New England, in New York, and in West Virginia, where in recent years, since the partial destruction of white pine, it has become the principal commercial timber, the amount annually cut far exceeding that of pine. The estimated stand in these states is, in round numbers, 50 billion feet, of which 7,517.6 million feet was reported as owned by lumbermen. The cut in these states in the census year was 965 million feet.

Spruce is found also in the Rocky Mountain region, where in some places it forms a notable component of the forest.

It is found also in western Washington and Oregon, scattered sparsely through the forests in the interior, and upon the Pacific coast, where it forms a large and important component of the forests.

HEMLOCK.

Hemlock occupies much the same range as does white pine, being found in the New England and other Northeastern states, and extending down the Appalachian mountains as far as southwest Virginia or North Carolina. It is found also in the neighborhood of the Great Lakes in considerable quantity. It exists in large quantities in the forests of the Pacific coast, but heretofore has been cut, at least under its proper name, to a trifling extent only, although it is a valuable timber and will be appreciated hereafter.

Growing nowhere as a pure forest, but everywhere intermingled with other species, its stand is a difficult thing to even guess, but is doubtless not less than 100 billion feet. The total amount in the country reported by lumbermen is 15,159.2 million feet.

CYPRESS.

Cypress is a tree of low, marshy regions. It occurs along the Atlantic and Gulf coasts from the Dismal Swamp, in southeastern Virginia, nearly to the Rio Grande. It is found in the lowlands and marshes of the Mississippi from southeastern Missouri to the mouth of the river.

Little is known of the amount of this timber, though it is of great value. The total amount reported as owned by lumbermen was 8,847.4 million feet, and this is probably but a small fraction, probably not more than 10 per cent, of the total stand.

SOUTHERN YELLOW PINE.

Yellow pine, of the species known as long-leaved, short-leaved, loblolly, and Cuban, is found in all the Southern states, but more than nine-tenths of it is in the Carolinas, Georgia, Florida, Alabama, Mississippi, Louisiana, Texas, and Arkansas. In these states it occupies the Atlantic plain, with the exception of the low, marshy strips near the coast occupied by cypress, while inland it extends beyond the Fall Line to varying distances in the Piedmont region, passing slowly by different stages of admixture into the hard-wood forests of the interior. Over most of its range it forms pure forests of open stand, with little or no undergrowth. The area occupied by pure pine forests in the nine states above enumerated is approximately 150,000 square miles, or about 100,000,000 acres. The average stand of timber on this area, from the best information obtainable, is not far from 3,000 feet, board measure, per acre, giving a total stand on this area of 300 billions of feet. The holdings by lumbermen of yellow pine in 1905 in these states showed a total of 70,982.1 million feet, or about one-fourth of the total estimated stand. The cut in the census year 1905 was 11,102 million feet, or 4 per cent of the estimated stand, and 16 per cent of the amount held by lumbermen.

HARD WOODS.

The central part of the United States, including the eastern portion of the upper Mississippi valley, is a region of hard woods, composed of a great variety of species. The principal of these, from an economic point of view, are the oaks, which, with gum, poplar, maple, cottonwood, elm, and ash, make up the great bulk of the forest. The forest is nowhere composed of any one species, but is made up not only of various species of hard woods, but of more or less conifers. The area in which hard woods form a predominant element of the forest is large, comprising several hundred thousand square miles, but it is ill defined. The stand differs greatly in different parts; hence it is impossible to make even a guess at the amount of timber of this species. The amount reported as owned by lumbermen is in the neighborhood of 28 billion feet, about one-half of which consists of oak. This amount reported by lumbermen doubtless forms only a small part of the stand, which may be five or ten times as great.

WESTERN YELLOW PINE.

Western yellow pine (*Pinus ponderosa*) is the commonest pine of the Rocky Mountain and Pacific Coast states. Its range extends from the Black Hills of South Dakota on the east nearly to the coast, and from the southern to the northern boundaries of the country. While many other species are found intermingled with it in the forests, it is in most localities the predominant tree, excepting in Oregon and Washington west of the Cascade range and in the redwood belt of California. In some localities it appears as a pure growth, in others mingled with other species. Its tendency, however, is to form pure growths of open forests with little underbrush. It endures moderately arid conditions, its lower limit representing approximately the isohyetal line of 20 inches. In Washington and northern Oregon its western extension is limited by the Cascade range, the moist conditions of the western side of that region enabling the Douglas fir and associate species to monopolize the ground, and in about the middle latitude of Oregon the increasing temperature and diminishing rainfall enable it to cross the Cascade range and to mingle with Douglas fir in the southwestern part of the state. Throughout California, excepting in the redwood strip, it is the predominant tree, occupying in the Sierra Nevada a belt whose lower limit ranges from 3,000 feet in the southern end of the range to 1,500 feet in its northern end, and extending upward to 8,000 or 9,000 feet. The southern portion of the Cascade range contains a mixed forest, in which yellow pine is a predominant element. It is found in the ranges of southern California above an altitude of 5,000 feet.

In size the tree varies greatly with localities. In the Black Hills, where it forms pure growth, it is small,

while in the Sierra Nevada and coast ranges in southern California it is a good sized tree, commonly 3 to 5 feet in diameter, but with individual trees much larger, ranging up to 200 and 250 feet in height, and cutting 3 to 5 clear logs per tree.

Most of the logging in this species, as well as in the sugar pine, is done for local consumption and in a small way; consequently there are few distinctive features associated with it.

The total supply of western yellow pine, which is mainly in Washington, Oregon, and California, is estimated to be about 125 billion feet. Of this, 26,637 million feet, or about one-fifth, was reported as owned by lumbermen.

SUGAR PINE.

Sugar pine (*Pinus lambertiana*) is found mainly on the western slope of the Sierra Nevada, in a belt ranging from 3,000 feet above the sea in the southern portion, of the range to 1,500 feet in the northern part, its upper limit being between 8,000 and 9,000 feet above the sea. It is also found in the northern part of the coast ranges in the same state in considerable quantities, as well as in the southern portion of Oregon. It is never found in pure forests, but always intermingled with other species, the principal of which is yellow pine, which commonly forms from two-thirds to three-fourths of the forest. Some Douglas fir and incense cedar is also commonly intermingled.

The sugar pine is a large tree, from 5 to 10 feet in diameter, and 250 feet in height, and a large proportion of it is clear. The wood is fine, greatly resembling in many respects the white pine of the East, and splits easily, for which reason it was in early days largely used for shakes, and much of it was culled from the forest in the mining days for this purpose, involving an enormous waste of valuable timber.

Heretofore it has been cut mainly for local consumption, but at present two or three large companies operating in the Sierra Nevada regions are cutting this timber, as well as the other components of the forest, in large amounts.

DOUGLAS FIR.

The Douglas fir (*Pseudotsuga taxifolia*) is found quite generally distributed over the Rocky Mountain country, where it forms, however, but a minor component of the forest. Its home is in western Oregon and Washington, west of the Cascade range, whence it extends nearly to the Pacific coast. In altitude it extends from the sea level on Puget sound and the Columbia river up to from 3,000 to 6,000 feet, dropping as the latitude increases. Under conditions most favorable to its development it forms pure forest, as in the country bordering upon Puget sound, and thence southward

to the Columbia. In other localities the proportion of fir to other trees differs greatly, and in southern Oregon, where it is largely mixed with yellow and sugar pine, the proportion becomes small. The tree is one of the largest on the Pacific coast, being exceeded in size only by the *Sequoia gigantea*, or big tree, and the redwood. The Douglas fir ranges from 200 to 300 feet in height and up to 20 feet in diameter, although the average diameter is much less. Growing in close stand the clear height is great, six logs being frequently cut from a tree. The stand is heavy, 50,000 feet to the acre on entire townships being not uncommon. The timber is of great strength, and is used largely for dimension timber in bridges, and for other purposes where great strength is required. It is transported east in considerable quantities for this purpose. It is also shipped to Asiatic and Australian ports and to South America.

The stand of Douglas fir is estimated at about 300 billion feet, of which 61,383 million feet were reported by the lumbermen.

REDWOOD.

Redwood (*Sequoia sempervirens*) is found only in a narrow strip closely bordering the Pacific coast, from the southern line of Oregon southward through California nearly to San Francisco bay, with a few comparatively small patches south of the bay. The strip ranges in width from 5 to 25 miles, never extending inland beyond the influence of the coast fogs. The area of the strip is approximately 2,000 square miles. The characteristics of its habitat are those of extreme moisture, with much rain in the winter season and fogs at all times of the year.

The forest is nearly pure, practically the only admixture consisting of a small percentage of red fir, or, as it is there designated, Oregon pine. The trees are large, with an average diameter of about 5 to 10 feet, while many individuals exceed 20 feet in diameter. In height they range up to 300 feet, from one-half to two-thirds of which is clear lumber. The forest is extremely dense, the average stand being nearly 60,000 feet per acre, while many tracts of considerable size carry from 100,000 to 150,000 feet per acre. Indeed, in the yield of lumber, this forest is probably the densest on earth, exceeding the fir forests of Oregon and Washington.

Lumbering is carried on at many points in the strip, at Crescent City, Humboldt bay, and in various points in Mendocino and Sonoma counties. The principal center of this lumber industry, however, is about Humboldt bay, of which Eureka is the metropolis. The lumbering and milling are carried on in this neighborhood by large companies, and the most modern meth-

ods and machinery are there employed. The mills are of the most modern type, equipped with gang and band saws, while the machinery for moving the logs and lumber is very complete. Indeed, the redwood mills about Eureka probably represent the highest development of this branch of manufacture in the world.

Redwood is a strong and very durable lumber, and is used in California for a great variety of purposes—

for house building, for water pipes, for shingles, and for inside finishing. It is shipped not only to all parts of California, but to Australia, Japan, and South America. There is only a limited local consumption of the wood, by far the greater part of it entering into commerce.

The supply of redwood is estimated at 75 billion feet, of which 13,298.7 million feet was reported as owned by lumbermen.

TURPENTINE AND ROSIN

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TURPENTINE AND ROSIN.

This report contains a statistical discussion of the manufacture of turpentine and rosin as reported at the census of 1905, and comparisons with previous censuses, also a discussion relative to the immediate future of the industry. An historical and descriptive article on the turpentine and rosin industry appeared in the Twelfth Census Report, Manufactures, Part III, page 1003.

The number of establishments engaged in the manufacture of spirits of turpentine and rosin reported at the census of 1905 includes only those whose products were valued at not less than \$500. In some instances, where two or more establishments were operated under

the same management, they have been tabulated as one.

In addition to those reported at the census of 1905 as engaged in the manufacture of spirits of turpentine and rosin there were 4 establishments engaged primarily in the manufacture of lumber, but producing turpentine and rosin as minor products to the value of \$26,780. These are distributed as follows: 1 in Florida, 2 in Georgia, and 1 in Mississippi.

Table 1 is a comparative summary of the statistics for the industry obtained at the censuses of 1850 to 1905, with the per cent of increase for each census period.

TABLE 1.—COMPARATIVE SUMMARY, WITH PER CENT OF INCREASE: 1850 TO 1905.

	CENSUS.						PER CENT OF INCREASE.						
	1905 ¹	1900	1890	1880	1870	1860	1850	1900 to 1905	1890 to 1900	1880 to 1890	1870 to 1880	1860 to 1870	1850 to 1860
Number of establishments	1,287	1,503	670	508	227	625	856	214.4	124.3	31.9	123.8	*63.7	*27.0
Capital	\$1,961,185	\$11,847,495	\$4,062,375	\$1,866,390	\$902,225	\$4,013,758	\$1,663,692	241.2	191.6	117.7	106.9	*77.5	141.3
Salaried officials, clerks, etc., number	2,147	1,889	³ 49	(⁴)	(⁴)	(⁴)	(⁴)	13.7	3,755.1				
Salaries	\$1,152,222	\$778,694	³ \$26,944	(⁴)	(⁴)	(⁴)	(⁴)	48.0	2,790.0				
Wage-earners, average number . .	33,382	41,864	15,266	10,535	2,638	4,214	3,437	*20.3	174.2	44.9	299.4	*37.4	22.6
Total wages	\$8,382,700	\$8,393,483	\$2,906,547	\$1,623,061	\$476,284	\$770,696	\$447,348	*0.1	188.8	79.1	240.8	*38.2	72.3
Men 16 years and over	33,237	41,375	15,031	9,955	2,526	4,079	3,369	*19.7	175.3	51.0	294.1	*38.1	21.1
Wages	\$8,365,468	\$8,338,044	\$2,891,392	(⁴)	(⁴)	(⁴)	(⁴)	0.3	188.4				
Women 16 years and over	16	173	141	338	81	135	68	*90.8	22.7	*58.3	317.3	*40.0	98.5
Wages	\$2,210	\$21,630	\$10,344	(⁴)	(⁴)	(⁴)	(⁴)	*89.8	109.1				
Children under 16 years	129	316	94	242	31	(⁴)	(⁴)	*59.2	236.2	*61.2	680.6		
Wages	\$15,022	\$33,809	\$4,811	(⁴)	(⁴)	(⁴)	(⁴)	*55.6	602.7				
Miscellaneous expenses	\$1,639,014	\$476,171	\$178,662	(⁵)	(⁵)	(⁵)	(⁵)	244.2	166.5				
Cost of materials used	\$3,774,637	\$6,186,492	\$2,874,693	\$2,324,637	\$2,146,090	\$4,324,414	\$1,484,318	*39.0	115.2	23.7	8.3	*50.4	191.3
Value of products	\$23,937,024	\$20,344,888	\$8,077,379	\$5,876,983	\$3,585,225	\$6,468,369	\$2,855,657	17.7	151.9	37.4	63.9	*44.6	126.5

¹ Exclusive of the statistics of 4 establishments which were engaged primarily in the manufacture of lumber. These establishments manufactured turpentine and rosin to the value of \$26,780.

² Decrease.

³ Includes proprietors and firm members, with their salaries; number only reported in 1900 and 1905, but not included in this table.

⁴ Not reported separately.

⁵ Not reported.

Measured by the value of products the industry shows a continuous growth at each census except that of 1870. The decrease shown in that year is accounted for by the unsettled conditions resulting from the Civil War. From 1870 to 1900 the value of products increased from \$3,585,225 to \$20,344,888, or nearly fivefold, and in each decade since 1870 the increase in value of products has been accompanied by an increase in the quantity of products. In 1905, however, there was a decrease as compared with 1900 in the quantity of products, while the value increased 17.7 per cent.

The decrease in the capital invested in 1905 as compared with 1900 is due largely to a difference in the items included under this head. In 1900 the value of

orchard lands was included in the capital, while for 1905 only the value of such lands was included as were used in the operation of the establishments, and this condition must be kept in mind in making comparisons between the statistics of capital as reported for 1905 and those for 1900. The number of salaried officials in 1905 increased 13.7 per cent over 1900 and their salaries 48 per cent; the number of wage-earners decreased 20.3 per cent and their wages only one-tenth of 1 per cent. The miscellaneous expenses show an increase of 244.2 per cent, while the cost of materials decreased 39 per cent.

Table 2 is a comparative summary, by states, of the statistics for 1900 and 1905.

MANUFACTURES.

TABLE 2.—COMPARATIVE SUMMARY, BY STATES: 1905 AND 1900.

STATE	Census.	Number of establishments.	Capital.	WAGE-EARNERS AND WAGES.		Miscellaneous expenses.	Cost of materials used.	Value of products.
				Average number.	Wages.			
United States.....	1905 1900	1,287 1,503	\$6,961,185 11,847,495	33,382 41,864	\$8,382,700 8,393,483	\$1,639,014 476,171	\$3,774,637 6,186,492	\$23,937,024 20,344,888
Alabama.....	1905 1900	144 152	767,048 1,176,391	2,919 3,716	745,283 780,573	162,132 59,214	511,467 650,681	2,434,365 2,033,705
Florida.....	1905 1900	406 366	2,939,275 5,526,618	15,541 15,073	3,713,584 3,049,200	657,976 201,756	724,654 1,222,932	9,901,905 6,469,605
Georgia.....	1905 1900	432 524	2,373,880 3,785,432	11,736 19,199	3,041,498 3,772,848	593,056 178,774	1,156,009 2,292,665	7,705,643 8,110,468
Louisiana.....	1905 1900	15 10	75,570 74,539	236 302	69,615 54,180	23,632 959	37,295 33,275	211,820 115,324
Mississippi.....	1905 1900	124 145	598,146 798,373	2,633 2,288	737,008 530,410	177,611 18,655	393,791 697,539	2,365,720 1,772,435
North Carolina.....	1905 1900	87 174	115,629 217,423	148 400	38,700 70,697	8,729 8,516	577,853 818,139	743,421 1,055,695
South Carolina.....	1905 1900	79 132	91,637 268,719	169 886	37,012 135,575	15,878 8,297	373,568 471,261	574,150 787,656

There was a decrease in the number of establishments in all the states except Florida and Louisiana, and the increase in these states is due to the fact that their forests have not until recently been so extensively worked as those of other states. The present tendency is toward building plants of very large capacity, and the largest establishments reported for 1905 are located in Florida. In 1900 Georgia ranked first in the value of products, but for 1905 Florida had taken this position.

Table 3 is a summary, by states, of establishments, by character of ownership, for 1900 and 1905.

TABLE 3.—Number of establishments, by character of ownership, with per cent in each class, by states: 1905 and 1900.

STATE AND CHARACTER OF OWNERSHIP.	1905		1900	
	Number of establishments.	Percent.	Number of establishments.	Percent.
United States.....	1,287	100.0	1,503	100.0
Individual.....	535	41.5	713	47.5
Firm.....	620	48.2	726	48.3
Incorporated company.....	130	10.1	62	4.1
Joint stock company.....	2	0.2	2	0.1
Alabama.....	144	100.0	152	100.0
Individual.....	68	47.2	67	44.1
Firm.....	69	47.9	79	52.0
Incorporated company.....	7	4.9	5	3.3
Joint stock company.....			1	0.6
Florida.....	406	100.0	366	100.0
Individual.....	105	25.9	123	33.6
Firm.....	236	58.1	230	62.8
Incorporated company.....	65	16.0	13	3.6
Georgia.....	432	100.0	524	100.0
Individual.....	200	46.3	232	44.3
Firm.....	218	50.5	272	51.9
Incorporated company.....	14	3.2	20	3.8
Louisiana.....	15	100.0	10	100.0
Individual.....	4	26.7	2	20.0
Firm.....	4	26.7	7	70.0
Incorporated company.....	7	46.6	1	10.0

TABLE 3.—Number of establishments, by character of ownership, with per cent in each class, by states: 1905 and 1900—Continued.

STATE AND CHARACTER OF OWNERSHIP.	1905		1900	
	Number of establishments.	Per cent.	Number of establishments.	Per cent.
Mississippi.....	124	100.0	145	100.0
Individual.....	35	28.2	64	44.1
Firm.....	62	50.0	63	43.5
Incorporated company.....	26	21.0	17	11.7
Joint stock company.....	1	0.8	1	0.7
North Carolina.....	87	100.0	174	100.0
Individual.....	68	78.2	140	80.4
Firm.....	16	18.4	33	19.0
Incorporated company.....	3	3.4	1	0.6
South Carolina.....	79	100.0	132	100.0
Individual.....	55	69.6	83	64.4
Firm.....	15	19.0	42	31.8
Incorporated company.....	8	10.1	5	3.8
Joint stock company.....	1	1.3		

The only increase in the number of establishments in 1905 as compared with 1900 is in the class owned by incorporated companies. Florida and Louisiana are the only states in which the entire number of establishments increased.

Table 4 is a summary, by states, of the statistics of the industry at the census of 1905, grouping the establishments according to the value of products, with the number and per cent in each group.

The tendency toward consolidation is very marked in Florida. Of the 7 establishments having a capital of at least \$100,000 engaged in this industry, 3 are located in that state and more than one-half of the establishments having a capital of over \$20,000 each. In the other turpentine producing states the smaller establishments predominate, although the tendency toward concentration is noticeable in Mississippi. It is noteworthy that the percentage of the total value

of products for each class of establishments given in Table 4 corresponds very closely with the percentage of capital invested in each class. This would indicate uniform methods of manufacture. The only appreciable advantage which large establishments appear to have over the smaller is in reducing the cost of mate-

rials used. Because of their size the establishments in Florida have naturally the greatest average value of products, the average per plant being \$24,389, compared with \$19,078 for Mississippi, \$17,837 for Georgia, \$16,905 for Alabama, \$14,121 for Louisiana, \$8,545 for North Carolina, and \$7,268 for South Carolina.

TABLE 4.—SUMMARY FOR ESTABLISHMENTS GROUPED BY VALUE OF PRODUCTS, WITH PER CENT IN EACH GROUP, BY STATES: 1905.

STATE AND VALUE OF PRODUCTS.	ESTABLISHMENTS.		CAPITAL.		WAGE-EARNERS AND WAGES.				MISCELLANEOUS EXPENSES.		COST OF MATERIALS USED.		VALUE OF PRODUCTS.	
	Num-ber.	Per cent.	Amount.	Per cent.	Average number.	Per cent.	Wages.	Per cent.	Amount.	Per cent.	Amount.	Per cent.	Amount.	Per cent.
United States.....	1,287	100.0	\$6,961,185	100.0	33,382	100.0	\$8,382,700	100.0	\$1,639,014	100.0	\$3,774,637	100.0	\$23,937,024	100.0
Less than \$5,000.....	143	11.1	174,441	2.5	388	1.2	86,977	1.0	24,126	1.5	196,442	5.2	424,039	1.8
\$5,000 but less than \$20,000.....	684	53.2	2,445,153	35.1	12,297	36.8	3,016,655	36.0	624,372	38.1	1,794,164	47.6	8,582,532	35.8
\$20,000 but less than \$100,000.....	453	35.2	4,106,191	59.0	19,624	58.8	5,008,308	59.8	918,428	56.0	1,612,876	42.7	14,029,269	58.6
\$100,000 but less than \$1,000,000.....	7	0.5	235,400	3.4	1,073	3.2	270,760	3.2	72,088	4.4	171,155	4.5	901,184	3.8
Alabama.....	144	100.0	767,048	100.0	2,919	100.0	745,283	100.0	162,132	100.0	511,467	100.0	2,434,365	100.0
Less than \$5,000.....	12	8.3	22,813	3.0	49	1.7	11,572	1.6	5,587	3.5	13,201	2.6	42,662	1.8
\$5,000 but less than \$20,000.....	98	68.1	402,185	52.4	1,540	52.7	390,664	52.4	79,306	48.9	320,728	62.7	1,276,317	52.4
\$20,000 but less than \$100,000 ¹	34	23.6	342,050	44.6	1,330	45.6	343,047	46.0	77,239	47.6	177,638	34.7	1,115,383	45.8
Florida.....	406	100.0	2,939,275	100.0	15,541	100.0	3,713,584	100.0	657,976	100.0	724,654	100.0	9,901,905	100.0
Less than \$5,000.....	10	2.5	31,400	1.1	81	0.5	15,750	0.4	4,216	0.6	3,225	0.4	30,595	0.3
\$5,000 but less than \$20,000.....	163	40.1	679,580	23.1	4,148	26.7	926,633	25.0	199,164	30.3	163,409	22.6	2,267,577	22.9
\$20,000 but less than \$100,000.....	230	56.7	2,076,095	70.6	10,534	67.8	2,580,701	69.5	419,306	63.7	501,620	69.2	7,167,759	72.4
\$100,000 but less than \$1,000,000.....	3	0.7	152,200	5.2	778	5.0	190,500	5.1	35,290	5.4	56,500	7.8	435,974	4.4
Georgia.....	432	100.0	2,373,880	100.0	11,736	100.0	3,041,498	100.0	593,056	100.0	1,156,009	100.0	7,705,643	100.0
Less than \$5,000.....	29	6.7	47,444	2.0	185	1.6	41,970	1.4	9,337	1.6	18,240	1.6	101,802	1.3
\$5,000 but less than \$20,000.....	268	62.0	973,690	41.0	5,504	46.9	1,404,909	46.2	276,528	46.6	555,453	48.0	3,411,540	44.3
\$20,000 but less than \$100,000 ¹	135	31.3	1,352,746	57.0	6,047	51.5	1,594,619	52.4	307,191	51.8	582,316	50.4	4,192,301	54.4
Louisiana.....	15	100.0	75,570	100.0	236	100.0	69,615	100.0	23,632	100.0	37,295	100.0	211,820	100.0
\$5,000 but less than \$20,000 ²	15	100.0	75,570	100.0	236	100.0	69,615	100.0	23,632	100.0	37,295	100.0	211,820	100.0
Mississippi.....	124	100.0	598,146	100.0	2,633	100.0	737,008	100.0	177,611	100.0	393,791	100.0	2,365,720	100.0
Less than \$5,000.....	16	12.9	23,460	3.9	17	0.7	5,090	0.7	1,058	0.6	27,150	6.9	45,654	1.9
\$5,000 but less than \$20,000.....	61	49.2	195,371	32.7	735	27.9	201,300	27.3	39,759	22.4	154,347	39.2	681,663	28.8
\$20,000 but less than \$100,000 ¹	47	37.9	379,315	63.4	1,881	71.4	530,618	72.0	136,794	77.0	212,294	53.9	1,638,403	69.3
North Carolina.....	87	100.0	115,629	100.0	148	100.0	38,700	100.0	8,729	100.0	577,853	100.0	743,421	100.0
Less than \$5,000.....	36	41.4	22,076	19.1	22	14.9	5,547	14.3	1,216	13.9	82,988	14.4	112,467	15.1
\$5,000 but less than \$20,000.....	47	54.0	74,543	64.5	80	54.0	20,153	52.1	3,641	41.7	361,290	62.5	464,954	62.6
\$20,000 but less than \$100,000 ¹	4	4.6	19,010	16.4	46	31.1	13,000	33.6	3,872	44.4	133,575	23.1	166,000	22.3
South Carolina.....	79	100.0	91,637	100.0	169	100.0	37,012	100.0	15,878	100.0	373,568	100.0	574,150	100.0
Less than \$5,000.....	39	49.4	27,248	29.7	33	19.5	6,648	18.0	2,712	17.1	51,538	13.8	89,929	15.7
\$5,000 but less than \$20,000.....	35	44.3	49,689	54.2	99	58.6	20,411	55.1	11,977	75.4	214,512	57.4	336,931	58.7
\$20,000 but less than \$100,000.....	5	6.3	14,700	16.1	37	21.9	9,953	26.9	1,189	7.5	107,518	28.8	147,290	25.6

¹ Includes 1 establishment with products valued at \$100,000 but less than \$1,000,000.

² Includes 1 establishment with products valued at less than \$5,000, and 2 establishments with products valued at \$20,000 but less than \$100,000.

Products.—Table 5 shows, by states, the quantity of crude turpentine distilled, the total value of products, the quantity, value, and average value per unit of spirits of turpentine and rosin, and the value of dross and all other products for 1905. The three classes of crude

turpentine are (1) virgin dip, which is the gum in a liquid state obtained during the first year the tree is worked; (2) other dip, liquid gum obtained after the first year the tree is worked; (3) scrape, a dried gum obtained by scraping the scarred surfaces of the worked trees.

TABLE 5.—QUANTITY OF CRUDE TURPENTINE DISTILLED AND QUANTITY AND VALUE OF PRODUCTS, BY STATES: 1905.

STATE.	Number of establishments.	CRUDE TURPENTINE, DISTILLED.				PRODUCTS.								
		Total (barrels, 280 pounds).	Virgin dip (barrels, 280 pounds).	Other dip (barrels, 280 pounds).	Scrape (barrels, 280 pounds).	Total value.	Spirits of turpentine.			Rosin.			Dross (value).	All other products (value).
							Quantity (gallons).	Value.	Average value per gallon (cents).	Quantity (barrels, 280 pounds).	Value.	Average value per barrel (280 pounds).		
United States.	1,287	5,294,139	1,326,731	2,741,973	1,225,435	\$23,937,024	30,687,051	\$15,170,499	49.4	3,508,347	\$8,725,619	\$2.49	\$17,733	\$23,173
Alabama.....	144	526,567	148,157	245,096	133,314	2,434,365	3,108,118	1,501,563	48.3	360,469	930,053	2.58	1,845	904
Florida.....	406	2,228,686	576,294	1,150,757	501,635	9,901,905	12,872,869	6,425,826	49.9	1,445,902	3,447,418	2.38	9,989	18,672
Georgia.....	432	1,653,182	399,822	886,395	366,965	7,705,643	9,542,316	4,795,331	50.3	1,104,968	2,901,583	2.63	5,199	3,530
Louisiana.....	15	44,733	12,795	18,539	13,399	211,820	245,300	124,005	50.6	30,023	87,715	2.92	100	.....
Mississippi.....	124	525,664	135,008	262,674	127,982	2,365,720	3,160,371	1,473,530	46.6	362,835	892,028	2.46	160	12
North Carolina.....	87	177,282	29,190	106,734	41,358	743,421	993,665	480,198	48.3	116,314	263,073	2.26	150	.....
South Carolina....	79	138,025	25,465	71,778	40,782	574,150	764,412	370,046	48.4	87,836	203,749	2.32	300	55

Crude turpentine and rosin are generally shipped in barrels of 280 pounds gross, and if it be assumed that the net weight is 240 pounds per barrel and that the weight of a gallon of spirits of turpentine is $7\frac{1}{4}$ pounds, the proportion of the products derivable by distillation would be 17.5 per cent spirits, 66.3 per cent rosin, and 16.2 per cent dross and waste. Because of the fact that in 1900 spirits of turpentine and rosin were reported in barrels regardless of capacity, while for 1905 spirits

were returned in gallons and rosin in barrels of 280 pounds, it is not practicable to compare the statistics for the two censuses. If, however, the quantity of spirits of turpentine reported for 1900 be reduced to gallons on the basis of 51 gallons to the barrel, and the statistics of rosin be reduced to barrels of 280 pounds, assuming that the average barrel, in 1900, contained 475 pounds, the following comparative statistics for the United States are obtained:

Quantity and value of turpentine and rosin: 1905 and 1900.

	QUANTITY.				VALUE.			
	1905	1900	Decrease.	Per cent of decrease.	1905	1900	Increase.	Per cent of increase.
Spirits of turpentine.....	Gallons. 30,687,051	Gallons. 38,488,170	Gallons. 7,801,119	20.3	\$15,170,499	\$14,960,235	\$210,264	1.4
Rosin.....	Barrels (280 lbs.). 3,508,347	Barrels (280 lbs.). 4,348,094	Barrels (280 lbs.). 839,747	19.3	8,725,619	5,129,268	3,596,351	70.1

The quantity of rosin shown for 1900 represents the entire quantity returned as produced. The total value of this product for that year, however, does not include some of the lowest grades of rosin, which did not enter into commerce. In many localities where transportation facilities were poor and the distilleries were remote from market centers, low grade rosin was not of sufficient value in 1900 to justify the expense of preparing for and transporting to market. Since 1900 there has been a marked increase in the value of rosin, brought about by increased consumption and decreased supply.

Consumption and exports.—Measured by the difference between the production during the calendar year 1904 and the exports for the year ending June 30, 1905, and assuming a relatively fixed ratio in the quantity of these products annually left over, the consumption of spirits of turpentine and rosin in the United States would be as shown in the following statement:

	Spirits of turpentine (gallons).	Rosin (barrels, 280 pounds).
Production.....	30,687,051	3,508,347
Exports.....	15,894,813	2,310,275
Consumption.....	14,792,238	1,198,072

Of the total quantity of spirits of turpentine and rosin produced, according to the above statement, 48.2 per cent of the turpentine and 34.1 per cent of the rosin were consumed in the United States.

The imports of these products in 1905 were insignificant, only 43,063 gallons of spirits of turpentine and no rosin being imported. It should be remembered that the production statistics of this report do not include "wood turpentine," a product obtained from the destructive distillation of pine, small quantities of which enter the statistics of exports of spirits of turpentine.

Table 6 shows the quantity and value of the exports of spirits of turpentine and rosin in five-year periods from 1865 to 1900, and yearly from 1901 to 1905.

TABLE 6.—Quantity and value of spirits of turpentine and rosin exported: 1865 to 1905.¹

YEAR.	SPIRITS OF TURPENTINE. ²		ROSIN.	
	Gallons.	Value.	Barrels.	Value.
1905.....	15,894,813	\$8,902,101	2,310,275	\$7,009,084
1904.....	17,202,808	9,446,155	2,583,108	6,621,870
1903.....	16,378,787	8,014,322	2,396,498	4,817,205
1902.....	19,177,788	7,431,248	2,335,962	4,202,104
1901.....	20,240,851	7,715,029	2,820,815	4,742,457
1900.....	18,090,582	8,354,922	2,389,364	3,842,190
1895.....	14,652,738	3,998,277	1,874,759	3,379,823
1890.....	11,248,920	4,590,931	1,619,704	2,797,410
1885.....	8,987,226	2,690,231	1,285,482	2,228,114
1880.....	7,091,200	2,132,154	1,040,345	2,368,180
1875.....	5,599,624	1,924,544	937,527	2,774,419
1870.....	3,246,697	1,357,302	583,316	1,776,625
1865.....	51,863	106,967	11,278	158,138

¹Bureau of Statistics, Department of Commerce and Labor, "Commerce and Navigation of the United States."

²The quantity and value of crude turpentine exported is included in the statistics from 1865 to 1900, and also of pitch exported from 1884 to 1900.

From the statistics in Table 6 it appears that the exports of both spirits of turpentine and rosin, with but few exceptions, increased in quantity until 1901, when the high water mark was reached.

Table 7 shows, by customs districts, the quantity of spirits of turpentine and rosin exported during the years ending June 30, 1900 and 1905.

TABLE 7.—Quantity of spirits of turpentine and rosin exported, by customs districts: 1905 and 1900.¹

CUSTOMS DISTRICT.	1905		1900	
	Spirits of turpentine (gallons).	Rosin (barrels).	Spirits of turpentine (gallons).	Rosin (barrels).
Total.....	15,894,813	2,310,275	18,090,582	2,369,118
Mobile, Ala.....	266	31,571	153,018	58,510
Alaska.....	100			
Arizona.....	242	1		
San Diego, Cal.....	125		45	
San Francisco, Cal.....	7,608	210		533
Apalachicola, Fla.....			30,755	52,765
Fernandina, Fla.....	7,306,422	804,392	157,768	14,482
Key West, Fla.....	4,804	96		
Pensacola, Fla.....	412,450	182,205	476,167	169,281
St. Johns, Fla.....			156	15
Tampa, Fla.....			130,421	6,888
Brunswick, Ga.....	1,340,289	163,785	3,173,410	333,019
Savannah, Ga.....	3,519,142	403,090	11,449,918	1,074,424
New Orleans, La.....	393,985	22,420	212,031	47,748
Bangor, Me.....	17,235		34,103	45
Passamaquoddy, Me.....		1,985		775
Baltimore, Md.....		94,492	111	174,414
Boston and Charlestown, Mass.....	13,594	2,753	2,044	17,131
Detroit, Mich.....	72,828	2,181	25,363	2,603

¹Bureau of Statistics, Department of Commerce and Labor, "Commerce and Navigation of the United States."

TABLE 7.—Quantity of spirits of turpentine and rosin exported, by customs districts: 1905 and 1900—Continued.

CUSTOMS DISTRICT.	1905		1900	
	Spirits of turpentine (gallons).	Rosin (barrels).	Spirits of turpentine (gallons).	Rosin (barrels).
Huron, Mich.....	293,289		282,353	440
Superior, Mich.....		29		
Pearl River, Miss.....	421,380	115,803		
Montana and Idaho.....			11	
Pamlico, N. C.....				4
Wilmington, N. C.....	43,948	67,859	53,974	138,763
North and South Dakota.....	62,782	2,788	39,049	1,192
Buffalo Creek, N. Y.....	33,069	12,707	15,426	4,599
Champlain, N. Y.....	82,450	11,205	27,728	15,334
New York, N. Y.....	1,572,519	309,221	1,587,010	220,610
Niagara, N. Y.....	7,319			
Oswegatchie, N. Y.....	10,384	183		991
Cuyahoga, Ohio.....	1,885		40	
Philadelphia, Pa.....	55,022	52,320	121	
Charleston, S. C.....				21,248
Corpus Christi, Tex.....	225	45		
Galveston, Tex.....			2	
Brazos de Santiago, Tex.....	585	177	90	97
Paso del Norte, Tex.....	292	47		
Saluria, Tex.....	759	2		567
Memphremagog, Vt.....	30,990	1,897	9,768	2,242
Vermont, Vt.....	177,393	26,791	226,008	10,474
Newport News, Va.....	8,750			
Puget Sound, Wash.....	2,682	20	2,525	490

As shown in Table 7, the export trade in this industry has naturally changed to the customs district nearest the states of largest production. The principal customs districts in the order of their importance from which spirits of turpentine was exported in 1905 are Fernandina, Fla., Savannah, Ga., New York, N. Y., Brunswick, Ga., Pearl River district, Miss., Pensacola, Fla., and New Orleans, La. In 1900 Savannah, Ga., was the most important exporting port for spirits of turpentine.

For twenty years the center of the naval stores industry has been at Savannah, Ga., to which point it moved from Wilmington, N. C., in the eighties. Savannah is still the market from which the world's prices emanate, although its exports are annually growing less. The rapid growth of Jacksonville, Fla., as a naval stores center during the five years following 1900 is reflected in the exports from Fernandina. This locality has the same advantage in the European trade of being on the Atlantic seaboard and is nearer the field of production. A large part of the traffic in naval stores which in 1900 went through Savannah and Brunswick now goes through the port of Fernandina.

Tables 8 and 9 present, respectively, the annual exports of spirits of turpentine and rosin, by countries to which exported, for the years ending June 30, 1901 to 1905.

TABLE 8.—QUANTITY AND VALUE OF SPIRITS OF TURPENTINE EXPORTED, BY COUNTRIES: 1901 TO 1905.¹

COUNTRY.	1905		1904		1903		1902		1901	
	Gallons.	Value.	Gallons.	Value.	Gallons.	Value.	Gallons.	Value.	Gallons.	Value.
Total.....	15,894,813	\$8,902,101	17,202,808	\$9,446,155	16,378,787	\$8,014,322	19,177,788	\$7,431,248	20,240,851	\$7,715,029
EUROPE.										
Austria-Hungary.....	10,000	6,085	10,239	6,215	21,856	10,689	21,000	9,255	53,252	24,902
Belgium.....	2,362,695	1,294,693	2,409,171	1,290,909	2,386,331	1,150,728	2,428,516	944,782	2,876,500	1,058,964
Germany.....	2,241,649	1,261,633	2,532,207	1,402,982	2,179,059	1,009,868	2,852,909	1,101,175	3,296,325	1,226,880
Italy.....	204,369	114,303	314,510	177,420	509,531	251,573	374,047	146,687	743,978	312,761
Netherlands.....	1,819,552	984,181	1,473,109	782,884	1,898,594	920,567	2,425,860	950,784	2,171,712	818,175
Spain.....	22,990	10,812			220	100				
United Kingdom.....	6,873,806	3,849,060	8,229,682	4,438,779	7,327,610	3,553,172	9,135,897	3,419,764	8,783,059	3,221,757
All other Europe.....	2,880	1,750	370	240	3,072	1,842	617	259	130	60
NORTH AMERICA.										
Bermuda.....	1,118	664	937	605	1,134	611	965	422	1,190	520
British Honduras.....	1,798	1,013	1,561	866	1,605	828	1,538	700	1,022	471
Dominion of Canada.....	811,026	452,130	673,428	380,179	848,928	425,541	748,039	304,805	697,428	289,840
Newfoundland and Labrador.....	4,474	2,966	5,495	3,361	5,387	3,220	4,374	1,990	5,271	2,474
Central American states:										
Costa Rica.....	7,261	4,327	10,148	6,346	8,791	5,180	4,957	2,527	8,074	3,781
Guatemala.....	3,349	2,595	2,778	2,226	3,097	2,103	4,709	2,892	523	278
Honduras.....	1,048	663	1,237	788	480	267	674	337	775	416
Nicaragua.....	5,521	3,598	3,416	2,366	2,895	1,829	4,734	2,689	3,654	1,881
Panama.....	18,841	11,113	4,257							
Salvador.....	949	667	1,095	859	250	181	147	91	70	41
Mexico.....	13,826	7,822	12,113	7,276	10,743	6,688	6,738	3,365	6,927	3,374
Miquelon, Langley, etc.....	602	385							306	141
West Indies:										
British.....	18,215	10,069	17,397	10,531	21,133	11,717	18,902	8,709	16,216	7,737
Cuba.....	136,645	65,549	115,155	57,296	84,135	39,929	106,284	41,023	112,850	47,155
Danish.....	401	237	436	263	859	511	786	360	732	300
Dutch.....	999	569	636	424	705	448	597	298	461	218
French.....	60	37	142	76	112	73	20	10	341	164
Haiti.....	3,602	2,247	3,140	1,913	3,154	1,781	3,113	1,868	5,100	2,222
Santo Domingo.....	1,650	1,043	2,196	1,311	1,333	737	1,752	748	1,775	836
SOUTH AMERICA.										
Argentina.....	290,196	177,261	306,062	186,015	265,060	144,698	163,050	76,396	282,605	131,380
Bolivia and the Guianas.....	4,545	2,831	3,901	2,495	4,451	2,721	3,240	1,518	5,325	2,481
Brazil.....	152,374	91,735	154,768	98,977	131,784	74,142	130,875	61,637	168,046	78,460
Chile.....	88,760	55,425	113,848	71,079	102,159	61,254	44,585	20,830	101,663	47,290
Colombia.....	10,086	6,339	13,693	8,982	12,448	7,576	9,116	4,648	11,244	5,427
Ecuador.....	12,038	7,477	5,447	3,610	5,090	3,274	3,650	1,747	11,345	5,376
Peru.....	45,401	24,564	39,825	25,238	19,835	11,374	16,450	7,348	41,743	19,600
Uruguay.....	33,600	19,295	34,740	20,855	40,100	22,246	21,981	9,964	46,725	22,204
Venezuela.....	11,866	7,359	15,299	9,826	7,206	4,116	8,741	4,213	14,012	7,018
ASIA.										
Chinese Empire.....	33,295	20,185	13,220	8,786	6,952	3,941	21,662	10,383	23,450	10,728
East Indies.....	67,000	41,830	64,300	41,658	57,660	33,096	37,380	16,953	27,530	13,024
Hongkong.....	5,000	3,100	570	283	75	37	3,160	1,368		
Japan.....	12,885	7,784	25,270	14,162	12,000	6,640	18,991	8,205	28,060	13,181
All other Asia.....	380	222	260	159	680	405	1,550	960	200	82
OCEANIA.										
All Oceania.....	457,231	279,661	479,134	299,933	196,707	111,342	447,455	206,980	597,576	284,580
AFRICA.										
British Africa.....	87,935	58,406	92,321	64,979	182,831	119,301	91,632	49,133	90,026	46,924
Turkey in Egypt.....	5,000	3,100	250	125						
All other Africa.....	7,895	5,316	15,045	10,148	12,735	7,976	7,095	3,925	3,630	1,920

¹ Bureau of Statistics, Department of Commerce and Labor, "Commerce and Navigation of the United States."TABLE 9.—QUANTITY AND VALUE OF ROSIN EXPORTED, BY COUNTRIES: 1901 TO 1905.¹

COUNTRY.	1905		1904		1903		1902		1901	
	Barrels.	Value.	Barrels.	Value.	Barrels.	Value.	Barrels.	Value.	Barrels.	Value.
Total.....	2,310,275	\$7,069,084	2,585,108	\$6,621,870	2,396,498	\$4,817,205	2,535,962	\$4,202,104	2,820,815	\$4,742,457
EUROPE.										
Austria-Hungary.....	88,767	275,546	93,532	226,859	66,476	102,775	106,554	148,231	114,117	172,645
Belgium.....	56,978	157,450	59,499	141,936	144,669	249,611	126,951	180,915	134,574	210,399
Germany.....	675,599	2,025,866	758,795	1,858,017	557,006	1,076,646	578,391	902,753	782,805	1,320,993
Italy.....	95,489	301,160	92,272	238,742	100,030	200,265	81,421	136,463	88,893	142,859
Netherlands.....	280,027	803,008	258,748	612,091	260,947	417,305	234,485	330,786	275,370	409,962
Russia.....	60,698	196,726	94,998	271,831	201,483	431,123	127,859	196,003	184,878	281,576
Spain.....	17,480	52,645	9,876	27,605	10,547	14,875	13,345	15,379	9,802	14,155
United Kingdom.....	552,563	1,704,185	696,515	1,782,286	705,318	1,462,804	830,886	1,423,853	809,012	1,848,304
All other Europe.....	7,462	22,703	11,447	26,319	7,055	13,894	16,207	26,950	17,556	28,773

¹ Bureau of Statistics, Department of Commerce and Labor, "Commerce and Navigation of the United States."

TABLE 9.—QUANTITY AND VALUE OF ROSIN EXPORTED, BY COUNTRIES: 1901 TO 1905—Continued.

COUNTRY.	1905		1904		1903		1902		1901	
	Barrels.	Value.	Barrels.	Value.	Barrels.	Value.	Barrels.	Value.	Barrels.	Value.
NORTH AMERICA.										
Dominion of Canada.....	61,960	\$205,473	64,905	\$186,954	61,812	\$166,882	45,551	\$110,401	51,129	\$111,531
All Central American states.....	3,946	13,681	3,779	11,770	3,782	9,549	3,634	9,137	4,126	9,168
West Indies:										
British.....	379	1,305	444	1,393	763	2,723	748	1,697	1,008	2,337
Cuba.....	14,981	52,842	16,145	46,806	14,793	33,317	9,913	18,320	7,162	13,645
Danish.....	11	37	1	4			2	5	4	10
Dutch.....	92	346	10	36	51	170	1	2	69	198
French.....	5	24	9	31	51	135			13	36
Haiti.....	845	3,347	1,771	5,825	1,830	6,129	2,451	6,689	2,015	5,222
Santo Domingo.....	3,421	10,726	2,244	6,840	2,880	7,761	1,708	4,918	1,851	4,141
All other North America.....	4,109	14,852	3,130	10,165	4,633	12,393	2,198	6,286	3,031	6,982
SOUTH AMERICA.										
Argentina.....	64,987	215,889	81,217	208,305	55,233	146,172	26,362	64,628	103,973	200,450
Brazil.....	91,350	302,340	131,088	395,711	82,061	180,798	119,278	225,172	102,975	192,622
Chile.....	5,694	17,645	9,770	28,787	6,419	18,836	7,864	19,600	5,472	12,860
Colombia.....	4,995	15,149	5,549	16,955	4,195	11,521	3,630	8,511	5,598	12,703
Peru.....	8,887	30,475	6,751	18,646	10,940	24,358	6,482	13,015	6,724	14,122
Uruguay.....	39,590	118,741	27,209	76,520	20,341	41,341	23,506	47,019	25,697	54,410
Venezuela.....	8,440	30,555	9,607	30,905	5,599	20,586	9,665	20,693	10,951	25,723
All other South America.....	655	2,573	41	126	92	236	379	845	222	499
ASIA.										
Chinese Empire.....	1,861	6,470	377	1,269	2,939	6,301	2,361	5,414	1,379	2,904
East Indies.....	68,507	190,793	46,762	118,209	2,890	8,900	80,284	105,872	27,723	42,918
Hongkong.....	855	2,926	974	3,284	302	937	546	1,251	788	1,641
Japan.....	19,615	67,237	21,906	69,944	6,869	20,702	17,312	37,322	7,666	17,187
All other Asia.....	95	345			52	160	1,899	5,028	85	176
OCEANIA.										
All Oceania.....	67,980	218,832	74,864	194,783	53,630	125,890	52,938	126,429	31,992	76,711
AFRICA.										
British Africa.....	1,832	6,797	762	2,599	638	1,603	864	1,857	1,804	3,880
All other Africa.....	120	395	111	323	172	507	287	659	351	715

The leading purchasers of spirits of turpentine from the United States are the United Kingdom, Belgium, Germany, and the Netherlands, whose combined takings in 1905 amounted to 83.7 per cent of the total quantity exported; 51.7 per cent of the total quantity taken by these countries went to the United Kingdom. During the same year 65.3 per cent of the total quantity of rosin exported went to Germany, the United Kingdom, and the Netherlands, 44.8 per cent of which was taken by Germany, 36.6 per cent by the United Kingdom, and 18.6 per cent by the Netherlands.

While there has been a decrease in the quantity of exports of both products during the past five years, the decrease in the exports of rosin to the United Kingdom has been so much greater than the decrease of rosin exported to Germany that the latter country now ranks first in the quantity taken.

Future of the industry.—The turpentine industry had its origin in the "long leaf pine belt" of the South and is still confined to that section. The forests of North Carolina and South Carolina were first invaded, then those of Georgia. At the present time the trend is south into Florida and west into Alabama, Louisiana, and Mississippi. The annually decreasing supply of raw material, referred to in the statistical description, indicated by the decrease in the quantity of rosin and turpentine manufactured during recent years, and

the increase in the price of these products have created a growing sentiment against forest devastation. Again, a new and more economical method of gathering resin has been adopted, and a new field has been exploited in the destructive distillation of old stumpage.

The fear of exhausting the raw material of the live trees has led to the adoption in some localities of the Herty cup and gutter system of tapping. The advantages claimed for the cup and gutter system are: (1) It protects the tree against the destructive action of storms and fires; (2) it increases both the quality and quantity of the product.¹ In Florida and Louisiana many lumber companies now allow only the improved method of gathering resin to be used in their forests.

Pine trees will produce resin in paying quantities for about four years only, and the incessant tapping of new trees has so reduced the visible supply in the South that experts estimate that the industry there, if carried on at the present rate, can not last over fifteen or twenty years more. In the meantime the forests of France, Spain, and Russia are being worked, higher prices having greatly stimulated the industry in European countries.

In the United States the Oregon fir tree is being tested as a resin producer, and if the results are satis-

¹ Bureau of Forestry, Department of Agriculture, Bulletin 40.

factory, the supply of rosin and spirits of turpentine may be increased from this source. By the destructive distillation of the stumps of pine trees a variety of products are being produced, among which is "wood turpentine," which contains the essentials of spirits of turpentine. With the removal of some prejudices

now existing in the trade as to the use of this product as a substitute for spirits of turpentine, the supply of turpentine will be made sufficient to meet the demand for many years.

Table 10 shows detailed statistics of the industry, by states, for the census of 1905.

TABLE 10.—TURPENTINE AND ROSIN—DETAILED SUMMARY, BY STATES: 1905.

	United States.	Alabama.	Florida.	Georgia.	Louisiana.	Mississippi.	North Carolina.	South Carolina.
Number of establishments.....	1,287	144	406	432	15	124	87	79
Capital, total.....	\$6,961,185	\$767,048	\$2,939,275	\$2,373,880	\$75,570	\$598,146	\$115,629	\$91,637
Land.....	\$183,548	\$13,150	\$63,253	\$46,229	\$22,820	\$30,295	\$4,133	\$3,668
Buildings.....	\$926,350	\$88,705	\$443,185	\$251,950	\$4,800	\$118,595	\$11,635	\$7,480
Machinery, tools, and implements.....	\$1,743,778	\$218,860	\$663,681	\$636,505	\$14,290	\$134,252	\$36,200	\$39,990
Cash and sundries.....	\$4,107,509	\$446,333	\$1,769,156	\$1,439,196	\$33,660	\$315,004	\$63,661	\$40,100
Proprietors and firm members.....	1,997	229	668	707	13	183	110	87
Salaried officials, clerks, etc.:—								
Total number.....	2,147	194	1,073	627	20	220	4	9
Total salaries.....	\$1,152,222	\$99,234	\$573,538	\$314,738	\$12,320	\$145,592	\$2,700	\$4,100
Officers of corporations—								
Number.....	47	3	31	11		2		
Salaries.....	\$49,740	\$1,960	\$36,080	\$8,200		\$3,500		
General superintendents, managers, clerks, etc.—								
Total number.....	2,100	191	1,042	616	20	218	4	9
Total salaries.....	\$1,102,482	\$97,274	\$537,458	\$306,538	\$12,320	\$142,092	\$2,700	\$4,100
Men—								
Number.....	2,098	190	1,042	616	20	218	3	9
Salaries.....	\$1,101,982	\$97,074	\$537,458	\$306,538	\$12,320	\$142,092	\$2,400	\$4,100
Women—								
Number.....	2	1					1	
Salaries.....	\$500	\$200					\$300	
Wage-earners, including pieceworkers, and total wages:								
Greatest number employed at any one time during the year.....	44,232	3,773	20,795	15,731	414	2,929	305	285
Least number employed at any one time during the year.....	28,704	2,436	12,178	10,891	194	2,635	165	205
Average number.....	33,382	2,919	15,541	11,736	236	2,633	148	169
Total wages.....	\$8,382,700	\$745,283	\$3,713,584	\$3,041,498	\$69,615	\$737,008	\$38,700	\$37,012
Men 16 years and over—								
Average number.....	33,237	2,913	15,438	11,711	231	2,628	148	168
Wages.....	\$8,365,468	\$744,618	\$3,701,572	\$3,038,166	\$69,065	\$736,485	\$38,700	\$36,862
Women 16 years and over—								
Average number.....	16	6	8	1	1			
Wages.....	\$2,210	\$665	\$1,245	\$200	\$100			
Children under 16 years—								
Average number.....	129		95	24	4	5		1
Wages.....	\$15,022		\$10,767	\$3,132	\$450	\$523		\$150
Average number of wage-earners, including pieceworkers, employed during each month:								
Men 16 years and over—								
January.....	27,364	2,703	15,023	7,171	175	2,147	75	70
February.....	27,933	2,763	15,257	7,376	190	2,183	77	87
March.....	33,112	2,854	15,515	11,715	208	2,593	116	111
April.....	35,795	2,983	16,084	13,392	248	2,740	166	182
May.....	37,261	3,152	16,813	13,824	276	2,777	208	211
June.....	37,605	3,105	16,788	14,111	297	2,880	207	217
July.....	36,661	3,055	16,286	13,784	299	2,821	195	221
August.....	35,263	3,008	15,449	13,336	284	2,796	173	217
September.....	34,418	2,984	15,027	12,988	257	2,786	173	203
October.....	33,405	2,982	14,580	12,523	207	2,768	153	192
November.....	32,064	2,741	14,260	11,897	178	2,674	133	181
December.....	27,963	2,626	14,174	8,415	153	2,371	100	124
Women 16 years and over—								
January.....	22	4	18					
February.....	19	1						
March.....	16	1	13	2				
April.....	19	4	13					
May.....	9	5	3	1				
June.....	9	5	3	1				
July.....	14	6	3	1	4			
August.....	14	6	3	1	4			
September.....	16	8	3	1	4			
October.....	12	8	3	1				
November.....	21	12	8	1				
December.....	21	12	8	1				
Children under 16 years—								
January.....	129		92		3	5		1
February.....	132		93	30	3	5		1
March.....	138		99	28	5	5		1
April.....	141		103	26	5	6		1
May.....	145		105	28	5	6		1
June.....	147		107	28	5	6		1
July.....	124		92	20	5	6		1
August.....	124		92	20	5	6		1
September.....	132		101	20	4	6		1
October.....	127		96	20	4	6		1
November.....	111		84	20	3	3		1
December.....	98		76	20	1			1
Miscellaneous expenses, total.....	\$1,639,014	\$162,132	\$657,976	\$593,056	\$23,632	\$177,611	\$8,729	\$15,878
Rent of works.....	\$8,353	\$3,579	\$665	\$2,623		\$347	\$914	\$225
Taxes.....	\$54,149	\$6,473	\$18,923	\$22,073	\$357	\$4,793	\$779	\$751
Rent of offices, interest, insurance, and all other sundry expenses not hitherto included.....	\$1,524,669	\$131,178	\$631,896	\$549,640	\$23,275	\$168,081	\$7,036	\$13,563
Contract work.....	\$51,843	\$20,902	\$6,492	\$18,720		\$4,390		\$1,339
Materials used, total cost.....	\$3,774,637	\$511,467	\$724,654	\$1,156,009	\$37,295	\$393,791	\$577,853	\$373,568
Crude turpentine purchased and orchard lands leased.....	\$2,463,089	\$338,093	\$416,671	\$572,316	\$22,050	\$260,874	\$520,140	\$332,945
Fuel.....	\$73,187	\$8,788	\$10,140	\$24,120	\$350	\$14,581	\$9,934	\$5,274
Mill supplies.....	\$3,027	\$1,553	\$544	\$553		\$172	\$1,000	\$105
All other materials.....	\$1,229,665	\$162,208	\$295,153	\$557,724	\$14,895	\$117,394	\$47,047	\$35,244
Freight.....	\$5,669	\$825	\$2,146	\$1,296		\$770	\$632	

TABLE 10.—TURPENTINE AND ROSIN—DETAILED SUMMARY, BY STATES: 1905—Continued.

	United States.	Alabama.	Florida.	Georgia.	Louisiana.	Mississippi.	North Carolina.	South Carolina.
Products, total value	\$23,937,024	\$2,434,365	\$9,901,905	\$7,705,643	\$211,820	\$2,365,720	\$743,421	\$574,150
Spirits of turpentine—								
Gallons	30,687,051	3,108,118	12,872,869	9,542,316	245,300	3,160,371	993,665	764,412
Value	\$15,170,499	\$1,501,563	\$6,425,826	\$4,795,331	\$124,005	\$1,473,530	\$480,198	\$370,046
Rosin—								
Barrels (280 pounds)	3,508,347	360,469	1,445,902	1,104,968	30,023	362,835	116,314	87,836
Value	\$8,725,619	\$930,053	\$3,447,418	\$2,901,583	\$87,715	\$892,028	\$263,073	\$203,749
Dross	\$17,733	\$1,845	\$9,989	\$5,199	\$100	\$150	\$150	\$300
All other products	\$23,173	\$904	\$18,672	\$3,530		\$12		\$55
Power:								
Number of establishments reporting	182	27	32	61		59	1	2
Total horsepower	1,175	151	349	362		300	4	9
Owned—								
Engines—								
Steam—								
Number	175	25	32	62		53	1	2
Horsepower	1,128	141	346	361		267	4	9
Water wheels—								
Number	1		1					
Horsepower	3		3					
Other power, horsepower	44	10		1		33		
Furnished to other establishments, horsepower	8			8				

PAPER AND WOOD PULP

(659)

PAPER AND WOOD PULP.

The manufacture of wood pulp, which was first reported at the census of 1870, was treated as a separate industry until the census of 1900, when it was combined with the manufacture of paper, and it is so treated in this report, which presents statistics relat-

ing to the manufacturing of paper and wood pulp as reported at the census of 1905.

Table 1 presents the statistics for this industry as returned at the censuses of 1850 to 1905, with the percentage of increase for each census period.

TABLE 1.—COMPARATIVE SUMMARY, WITH PER CENT OF INCREASE: 1850 TO 1905.

	CENSUS.							PER CENT OF INCREASE.					
	1905	1900	1890	1880	1870	1860	1850	1900 to 1905	1890 to 1900	1880 to 1890	1870 to 1880	1860 to 1870	1850 to 1860
Number of establishments ..	761	763	649	742	677	555	443	10.3	17.6	12.5	9.6	22.0	25.3
Capital	\$277,444,471	\$167,507,713	\$89,829,548	\$48,139,652	\$34,556,014	\$14,052,683	\$7,260,864	65.6	86.5	86.6	39.3	145.9	93.5
Salaries of officials, clerks, etc., number.....	3,778	2,935	21,348	(³)	(³)	(³)	(³)	28.7	117.7	-----	-----	-----	-----
Salaries.....	\$6,097,032	\$4,500,911	\$1,770,657	(³)	(³)	(³)	(³)	35.5	154.2	-----	-----	-----	-----
Wage-earners, average number.....	65,964	49,646	31,050	25,631	18,021	10,911	6,785	32.9	59.9	21.1	42.2	65.2	60.8
Total wages.....	\$32,019,212	\$20,746,426	\$13,204,828	\$8,970,133	\$7,208,691	\$2,767,212	\$1,497,792	54.3	57.1	47.2	24.4	160.5	84.8
Men 16 years and over.....	56,827	41,547	24,015	17,317	11,032	6,519	3,835	36.8	73.0	38.7	57.0	69.2	70.0
Wages.....	\$29,462,799	\$18,753,326	\$11,459,318	(³)	(³)	(³)	(³)	57.1	63.6	-----	-----	-----	-----
Women 16 years and over.....	8,882	7,930	6,767	7,648	6,153	4,392	2,950	12.0	17.2	11.5	24.3	40.1	48.9
Wages.....	\$2,499,588	\$1,958,135	\$1,705,287	(³)	(³)	(³)	(³)	27.6	14.8	-----	-----	-----	-----
Children under 16 years.....	255	169	268	666	836	(³)	(³)	50.9	136.9	159.8	120.3	-----	-----
Wages.....	\$56,825	\$34,965	\$40,223	(³)	(³)	(³)	(³)	62.5	113.1	-----	-----	-----	-----
Miscellaneous expenses.....	\$16,440,041	\$10,184,106	\$6,770,681	(⁴)	(⁴)	(⁴)	(⁴)	61.4	50.4	-----	-----	-----	-----
Cost of materials used.....	\$111,251,478	\$70,530,236	\$44,228,480	\$34,862,132	\$30,058,563	\$11,602,266	\$5,553,929	57.7	59.5	26.9	16.0	159.1	108.9
Value of products.....	\$188,715,189	\$127,326,162	\$78,937,184	\$57,366,860	\$48,849,285	\$21,216,802	\$10,187,177	48.2	61.3	37.6	17.4	130.2	108.3

¹ Decrease.

² Includes proprietors and firm members, with their salaries; number only reported in 1900 and 1905, but not included in this table.

³ Not reported separately.

⁴ Not reported.

The figures shown for 1850 and 1860 are for paper alone, as at those censuses no separate statistics were collected relating to the manufacture of wood pulp, which was little used in the manufacture of paper in this country prior to 1870.

A comparison of the figures in Table 1 for 1850 and 1905 indicates the great expansion of the paper and wood pulp industry. The number of establishments has increased from 443 to 761, an increase of 318, or 71.8 per cent; the capital has increased \$270,183,607, or nearly fortyfold; the number of wage-earners, 59,179, or about ninefold; wages, \$30,521,420, or about twentyfold; and the value of products, \$178,528,012, or about seventeenfold.

The increase in the number of establishments does not appear remarkable, but it must be borne in mind that the concentration of manufacture into large plants which has been so marked in recent years has particularly affected the paper and wood pulp industry, and thus has greatly restricted the increase in number of establishments. The extent to which this

is true is well brought out in the following tabular statement, which shows the average amount of capital invested and the average value of products per establishment at each census from 1850 to 1905:

CENSUS.	AVERAGE PER ESTABLISHMENT.	
	Capital.	Value of products.
1905.....	\$364,579	\$247,983
1900.....	219,538	166,876
1890.....	138,412	121,629
1880.....	64,878	77,314
1870.....	51,043	72,156
1860.....	25,320	38,228
1850.....	16,390	22,996

The increase per establishment of the average capital and the average value of products was steady but not marked until the decade from 1880 to 1890, when a very large increase was reported for both items. The increase between 1890 and 1900 was even greater, while the increase for the five years ending 1905 was

still more notable. The average annual increase per establishment in capital invested between 1890 and 1900 was \$8,113, and between 1900 and 1905, \$29,008; while for value of products the average annual increase per establishment between 1890 and 1900 was \$4,525, and between 1900 and 1905, \$16,221.

Table 1 shows large increases for each census from 1850 to 1905 for all items except number of establishments, number of women and children employed, and the wages paid to them, which show decreases for several of the census periods.

The present report is, however, concerned chiefly with the progress made in the paper and wood pulp industry between the census of 1900 and that of 1905. In this period the capital invested increased \$109,936,758, or 65.6 per cent; the number of wage-earners,

16,318, or 32.9 per cent; the wages, \$11,272,786, or 54.3 per cent; the cost of materials used, \$40,721,242, or 57.7 per cent; and the value of products, \$61,389,027, or 48.2 per cent.

The increases for this period are striking, especially when compared with the large increases for the preceding decade. In none of the items just enumerated was the actual increase for the longer period as large as the increase for the shorter, except in the number of wage-earners.

THE INDUSTRY BY STATES.

Table 2 is a comparative summary of the general statistics, by states, for 1900 and 1905, and shows in detail the kind, quantity, and value of products.

TABLE 2.—COMPARATIVE SUMMARY.

	STATE.	Census.	Number of establishments.	Capital.	SALARIED OFFICIALS, CLERKS, ETC.		WAGE-EARNERS AND WAGES.		Miscellaneous expenses.	Cost of materials used.	PRODUCTS.	
					Number.	Salaries.	Average number.	Wages.			Aggregate value.	paper. Total value.
1 2	United States.....	1905 1900	761 763	\$277,444,471 167,507,713	3,778 2,935	\$6,097,032 4,500,911	65,964 49,646	\$32,019,212 20,746,426	\$16,440,041 10,184,106	\$111,251,478 70,530,236	\$188,715,189 127,326,162	\$163,646,420 107,909,046
3	California ¹	1905	3	1,176,427	12	20,280	259	181,412	50,768	274,369	640,027	640,027
4 5	Connecticut.....	1905 1900	50 49	5,892,634 3,968,152	154 115	236,408 151,600	1,750 1,425	843,333 633,413	522,352 279,962	2,738,430 1,982,080	5,039,147 3,565,021	5,002,331 3,493,596
6 7	Delaware.....	1905 1900	6 6	3,176,498 2,143,108	22 19	69,900 61,675	547 451	252,268 193,783	47,839 90,785	1,270,240 1,028,274	1,904,556 1,599,718	1,354,556 1,169,405
8 9	Illinois.....	1905 1900	19 15	3,992,877 1,554,858	73 35	120,069 37,370	959 623	462,453 250,303	166,645 72,650	1,415,845 798,370	2,442,504 1,431,618	2,359,450 1,431,618
10 11	Indiana.....	1905 1900	36 39	6,511,005 5,379,227	112 134	131,538 186,394	1,620 1,816	664,151 723,972	280,397 226,156	2,517,028 2,470,623	3,916,998 4,170,497	3,910,638 3,690,968
12 13	Iowa.....	1905 1900	4 4	367,913 182,045	13 11	11,936 11,770	152 180	66,114 63,589	11,484 13,350	130,647 106,615	252,832 243,776	252,832 243,776
14	Kansas ¹	1905	3	131,540	8	7,940	91	45,947	18,372	78,330	202,290	202,290
15 16	Maine.....	1905 1900	37 35	41,273,915 17,473,160	350 258	604,774 445,348	7,574 4,851	4,052,919 2,162,972	2,257,950 1,394,967	13,868,147 7,118,945	22,951,124 13,223,275	17,969,764 9,394,646
17 18	Maryland.....	1905 1900	16 21	6,350,458 2,720,877	47 35	76,068 58,793	1,008 937	397,181 326,474	184,007 105,571	2,453,318 1,730,910	3,296,348 2,589,540	2,410,821 1,754,060
19 20	Massachusetts.....	1905 1900	87 93	41,073,769 26,692,922	627 510	1,184,610 861,152	11,705 9,061	5,587,862 3,938,400	2,960,680 1,693,505	17,946,726 11,918,802	32,012,247 22,141,461	31,537,370 21,549,232
21 22	Michigan.....	1905 1900	30 27	8,397,576 4,505,741	163 107	218,369 142,812	3,052 2,014	1,306,112 700,826	498,032 264,373	4,581,471 2,707,827	7,340,631 4,217,869	6,874,724 3,871,120
23	Minnesota ¹	1905	4	1,490,902	22	31,450	396	234,378	60,884	676,549	1,145,818	1,024,768
24 25	New Hampshire.....	1905 1900	25 29	14,041,014 8,163,081	147 113	208,930 173,060	2,522 2,391	1,315,310 1,036,856	650,683 539,955	5,327,734 3,963,334	8,930,291 7,244,733	5,848,326 4,303,505
26 27	New Jersey.....	1905 1900	38 34	7,122,852 3,670,717	129 93	232,958 162,738	1,629 1,190	786,731 553,463	286,681 242,793	3,022,484 1,715,312	5,043,462 3,195,302	4,611,597 3,188,122
28 29	New York.....	1905 1900	177 179	56,461,739 37,349,390	759 604	1,131,729 858,662	12,418 9,268	6,402,323 4,099,771	2,848,610 2,398,994	22,805,751 14,563,222	37,750,605 26,715,628	31,700,400 21,418,285
30 31	Ohio.....	1905 1900	53 51	14,433,114 7,872,913	222 196	327,394 277,984	3,883 3,184	1,682,830 1,118,040	1,396,939 479,386	6,153,761 3,768,572	10,961,527 6,543,513	10,022,137 6,142,580
32 33	Oregon.....	1905 1900	4 5	2,967,630 2,161,186	45 28	132,366 101,417	653 716	318,113 282,896	225,741 147,417	624,520 582,078	1,530,449 1,305,696	1,515,549 1,290,186
34 35	Pennsylvania.....	1905 1900	65 73	21,468,927 16,424,107	324 281	517,955 385,478	5,906 4,840	2,839,487 1,989,128	1,535,291 1,090,321	8,509,546 6,374,315	15,411,032 12,267,900	14,120,062 11,355,637
36 37	Vermont.....	1905 1900	28 27	5,628,676 4,853,806	99 88	123,103 129,498	1,280 1,216	616,735 571,018	233,971 265,569	2,539,766 1,684,922	3,831,448 3,384,773	3,482,426 2,656,025
38 39	Virginia.....	1905 1900	9 7	5,517,200 2,281,903	65 34	133,585 58,250	993 302	363,010 102,993	269,123 57,829	1,788,756 410,640	3,034,395 850,386	1,453,735 651,114
40 41	West Virginia.....	1905 1900	7 6	2,215,436 926,463	37 22	47,018 25,540	545 281	229,972 98,329	85,604 44,193	759,962 274,316	1,298,066 527,527	346,642 168,500
42 43	Wisconsin.....	1905 1900	52 47	24,408,918 16,580,140	287 199	435,474 307,927	6,338 4,240	2,987,777 1,649,010	1,679,718 664,591	10,692,290 6,712,749	17,844,174 10,895,576	15,070,757 9,037,461
44 45	All other states.....	² 1905 ³ 1900	8 16	3,343,401 2,603,917	61 53	93,178 63,443	684 660	382,794 251,190	168,270 111,739	1,075,778 628,330	1,935,218 1,212,353	1,935,218 1,099,210

¹ Included in "all other states" in 1900.² Includes establishments distributed as follows: Colorado, 1; District of Columbia, 1; Georgia, 1; Missouri, 1; South Carolina, 1; Texas, 1; Washington, 2.

BY STATES: 1905 AND 1900.

PRODUCTS—continued.														
Paper—Continued.												Wood pulp and fiber made for sale (value).	All other products (value).	
News.		Book.		Fine.		Wrapping.		Boards.		Other paper products.				
Tons.	Value.	Tons.	Value.	Tons.	Value.	Tons.	Value.	Tons.	Value.	Tons.	Value.			
912,822 569,212	\$35,906,460 20,091,874	515,547 351,702	\$37,403,501 24,870,951	146,832 112,707	\$22,249,170 15,895,974	644,291 535,252	\$30,435,592 24,542,373	520,651 315,617	\$16,959,557 10,353,319	366,553 233,103	\$20,692,140 12,154,555	\$23,144,574 18,497,701	\$1,924,195 919,415	1 2
						7,328	375,940	3,507	143,587	1,920	120,500			3
		6,009 7,849	585,879 756,471	6,439 2,298	864,055 361,412	7,056 14,219	502,544 743,747	64,610 30,762	2,354,053 1,158,499	5,535 4,079	695,800 473,467		36,816 71,425	4 5
		17,255 14,421	1,274,491 1,097,722	590	53,950	19	760			212 1,065	25,355 71,683	550,000 430,313		6 7
3,015	128,108					16,386 32,980	417,727 544,575	53,590 37,428	1,522,415 814,081	14,910 3,650	291,200 72,962	44,200	38,854	8 9
7,315 6,400	316,764 320,000	1,807 4,110	119,424 270,808			28,144 23,010	874,463 786,540	83,414 93,775	2,217,116 2,041,881	24,222 4,233	382,871 271,679	3,360 454,279	3,000 25,250	10 11
						4,972 4,990	116,162 166,776	3,000	77,350	2,996 3,850	59,320 77,000			12 13
						3,000	65,000	6,082	137,290					14
215,307 122,738	7,721,864 4,122,050	67,397 30,041	5,159,239 2,600,211	4,400	385,000	89,818 39,659	4,075,497 2,092,298	13,477 14,843	523,568 520,087	2,525	104,596	4,888,809 3,828,629	92,551	15 16
810	49,748	28,827 14,873	1,986,753 1,017,164			1,084 8,045	29,188 422,584	4,174 5,172	112,207 106,719	7,035 4,638	282,673 157,845	885,527 810,480	25,000	17 18
19,659 22,194	904,769 840,705	123,508 69,029	9,891,151 5,501,788	80,775 68,055	14,971,411 11,298,628	16,150 22,238	1,417,915 1,441,291	27,020 17,238	1,338,346 954,111	29,112 25,755	3,013,778 1,512,709	415,975 426,672	58,902 165,557	19 20
8,167 150	337,747 10,200	52,308 45,206	3,647,183 2,350,790	2,647 1,592	256,062 161,427	32,654 20,370	1,565,861 811,750	26,382 14,051	812,781 348,947	6,179 4,361	255,090 188,006	407,286 346,516	58,621 233	21 22
25,379	921,421									2,946	103,347	100,000	21,050	23
80,522 57,875	3,176,191 2,078,604	12,039 11,070	814,679 724,053	414	18,677	27,141 16,933	1,184,128 784,422	8,268 5,618	350,277 241,184	2,681 6,788	304,374 475,242	3,031,345 2,916,853	50,620 24,375	24 25
		4,720 3,650	330,417 249,640	60	6,000	18,720 18,959	1,471,713 1,015,645	37,692 21,165	1,174,348 703,180	29,844 12,641	1,635,119 1,213,657	330,233 7,180	101,632 7,180	26 27
347,546 204,957	13,465,093 6,879,013	44,515 35,842	2,514,271 2,213,389	55 1,225	6,604 136,959	157,186 157,385	7,180,993 7,466,185	90,094 40,394	3,347,317 1,368,585	80,644 65,608	4,886,122 3,354,154	5,621,342 5,232,451	428,863 64,892	28 29
4,104 7,517	190,600 354,556	21,461 16,712	1,664,079 1,158,695	8,722 4,095	1,057,920 578,172	44,037 49,854	1,786,172 2,303,199	60,269 53,886	1,716,740 1,167,360	46,038 13,269	3,606,626 580,598	413,151 174,809	526,239 226,124	30 31
24,195 21,416	1,088,775 856,646					7,916 8,274	426,774 375,960			1,510	57,580	14,900 15,510		32 33
1,140 1,031	50,445 51,543	68,163 61,863	5,193,981 4,766,699	22,095 19,944	2,322,427 1,749,511	58,192 36,110	3,154,038 2,024,486	26,398 20,486	688,358 595,414	80,099 58,152	2,710,813 2,167,984	844,098 710,539	446,872 201,724	34 35
34,396 26,166	1,397,204 930,818	4,431	181,671	948	54,785	17,633 20,295	891,106 973,792	4,599 3,763	183,764 183,236	13,859 4,364	955,567 386,508	343,386 728,748	5,636	36 37
1,576 1,320	77,140 72,600	11,026 799	724,158 51,223	166 720	12,956 55,506	2,450 762	104,600 15,250	4,199 2,236	161,658 55,735	3,344 4,780	373,183 400,800	1,580,660 199,272		38 39
				50	6,000	2,054 1,525	232,864 89,000	3,709 3,500	93,790 73,500	285	19,988	916,099 299,027	35,325 60,000	40 41
121,749 90,075	5,187,635 3,253,391	52,283 25,657	2,839,787 1,653,974	17,333 13,991	2,066,243 1,489,199	94,454 46,889	4,200,058 2,048,805	167	4,592	10,618 10,119	772,442 592,092	2,754,203 1,855,953	19,214 2,162	42 43
18,752 6,560	942,664 272,000	4,229 3,119	358,009 216,593	2,248 677	179,080 53,160	7,897 12,755	362,089 436,068	1,300	20,800	1,549 3,641	93,376 100,589	67,650	45,493	44 45

* Includes establishments distributed as follows: California, 2; Colorado, 2; Georgia, 2; Kansas, 2; Minnesota, 2; North Dakota, 1; South Carolina, 1; Texas, 2; Washington, 2.

Table 2 shows that in the manufacture of paper and wood pulp New York, which was first in 1900, was first also at the census of 1905, with products valued at more than one-fifth of the total value. Massachusetts was second in both years and Maine third; Wisconsin was fourth, as reported in 1905, and fifth in 1900; while Pennsylvania was fifth, as reported in 1905, and fourth in 1900. The increase in value of products for each of these states was large, that for New York being \$11,034,977, or 41.3 per cent; for Massachusetts, \$9,870,786, or 44.6 per cent; for Maine, \$9,727,849, or 73.6 per cent; for Wisconsin, \$6,948,598, or 63.8 per cent; and for Pennsylvania, \$3,143,132, or 25.6 per cent.

New York was first in the amount of capital invested, followed by Maine, Massachusetts, and Wisconsin in the order named. In 1900 Massachusetts ranked ahead of Maine, but the increase for the latter state was so much larger as to give it the second rank at the census of 1905. The increase for Maine was the largest shown by any state, being \$23,800,755, or 136.2 per cent; while the next largest, that for New York, was \$19,112,349, or 51.2 per cent. The increase for Massachusetts was \$14,380,847, or 53.9 per cent. The large increase for Maine is doubtless due in part to the fact that the factories of that state are engaged largely in the manufacture of the coarser and heavier products, such as news, book, and wrapping paper, and pulp, which require the use of heavy and costly machinery.

In the average number of wage-earners, wages, and cost of materials used, the leading states were New York, Massachusetts, Maine, and Wisconsin.

CAPITAL.

Table 3 shows, for 1900 and 1905, the capital invested, with the proportion invested in each item, and per cent of increase.

TABLE 3.—Capital, with per cent each item forms of the total, and per cent of increase: 1905 and 1900.

	1905		1900		Per cent of increase.
	Amount invested.	Per cent of total.	Amount invested.	Per cent of total.	
Total	\$277,444,471	100.0	\$167,507,713	100.0	66.0
Land	34,234,934	12.3	21,467,286	12.8	61.0
Buildings	62,898,590	22.7	35,440,184	21.2	77.8
Machinery, tools, and implements	103,872,408	37.4	60,351,066	36.0	72.4
Cash and sundries	76,438,539	27.6	50,249,177	30.0	52.1

At the census of 1905, as compared with 1900, the greatest rate of increase was 77.8 per cent, which occurred in capital invested in buildings, and the largest absolute increase was \$43,521,342, and is shown for machinery, tools, and implements.

MATERIALS USED.

Table 4 shows in detail the kind, quantity, and cost of materials used in the manufacture of paper and pulp, for 1900 and 1905, with per cent of increase.

TABLE 4.—Materials used, by kind, quantity, and cost, with per cent of increase: 1905 and 1900.

	1905	1900	Per cent of increase.
Materials used, total cost	\$111,251,478	\$70,530,236	57.7
Domestic pulp wood:			
Spruce—			
For ground wood—			
Cords	881,106	598,229	47.3
Cost	\$6,355,563	\$2,855,872	122.5
For sulphite and soda fiber—			
Cords	851,425	561,889	51.5
Cost	\$5,582,289	\$2,731,070	104.4
Poplar—			
For soda fiber—			
Cords	213,058	236,820	110.0
Cost	\$1,506,971	\$1,103,132	36.6
Other—			
Cords	527,505	220,155	139.6
Cost	\$2,508,982	\$783,985	220.0
Canadian pulp wood:			
Spruce—			
For ground wood—			
Cords	245,087	120,820	102.8
Cost	\$2,173,612	\$868,187	150.4
For sulphite and soda fiber—			
Cords	293,218	228,264	28.5
Cost	\$2,396,405	\$1,404,308	70.6
Poplar—			
For soda fiber—			
Cords	35,313	20,133	75.4
Cost	\$251,600	\$90,962	176.6
Other—			
Cords	4,005	(2)	.....
Cost	\$25,449	(2)	.....
Rags, including cotton and flax waste and sweepings:			
Tons	294,552	234,514	25.6
Cost	\$8,864,607	\$6,595,427	34.4
Old or waste paper:			
Tons	588,543	356,193	65.2
Cost	\$7,430,335	\$4,869,409	52.6
Manila stock, including jute bagging, rope, waste, threads, etc.:			
Tons	107,029	99,301	7.8
Cost	\$2,502,332	\$2,437,256	2.7
Straw:			
Tons	304,585	367,305	117.1
Cost	\$1,502,886	\$1,395,659	7.7
Wood pulp and fiber, purchased:			
Ground wood pulp—			
Tons	317,286	261,962	21.1
Cost	\$5,754,259	\$4,361,211	31.9
Soda wood fiber—			
Tons	120,978	94,042	28.6
Cost	\$5,047,105	\$3,430,809	47.1
Sulphite wood fiber—			
Tons	433,160	273,194	58.6
Cost	\$16,567,122	\$10,112,189	63.8
Other chemical fiber—			
Tons	6,278	14,808	157.6
Cost	\$264,678	\$465,255	143.1
Other stock	\$1,963,066	\$817,075	140.2
Sulphur:			
Tons	130,400	(2)	.....
Cost	\$3,221,834	(2)	.....
Other chemicals	\$5,111,546	\$6,846,033	125.3
Pyrites:			
Tons	2,036	(2)	.....
Cost	\$31,925	(2)	.....
Sizing:			
Tons	52,171	(2)	.....
Cost	\$1,838,035	\$326,245	122.5
Clay:			
Tons	201,218	(2)	.....
Cost	\$2,096,570	\$1,493,469	40.4
Fuel	\$13,178,567	\$6,879,797	91.6
Rent of power and heat	\$70,169	\$611,906	188.5
Mill supplies	\$2,526,950	\$2,696,797	16.3
All other materials	\$11,034,537	\$4,420,507	149.6
Freight	\$1,444,084	\$2,433,676	140.7

¹ Decrease.

² Not reported separately.

Increases in cost are shown in Table 4 for the totals of all items except mill supplies, freight, and rent of power and heat. At the census of 1905 the cost of wood was greater than in 1900 by over 100 per cent

for every variety except domestic poplar, which increased 36.6 per cent; and Canadian spruce for sulphite and soda fiber, which increased 70.6 per cent.

The pulp and fiber purchased was the principal item of cost reported in both 1905 and 1900, forming 24.8 per cent of the total cost in the later and 26 per cent in the earlier year. This decrease in the proportion to the whole is due largely to the fact that wood pulp and fiber, as reported at the census of 1905, was produced more largely in the establishment requiring it than in 1900. The quantity of wood pulp and fiber reported in 1905 as purchased increased 233,696 tons, or 36.3 per cent, over 1900, and the value, \$9,263,700, or 50.4 per cent. Sulphite wood fiber was the principal kind of pulp purchased, and formed 49.4 per cent of the total quantity purchased in 1905 and 42.4 per cent in 1900. In the aggregate amount of pulp made for own use and purchased, however, sulphite fiber was second in quantity to ground wood pulp.

The cost of wood of all kinds formed 18.7 per cent of the total cost of materials reported in 1905 and 13.9 per cent in 1900. The principal kind of wood used was spruce, which formed 74.4 per cent of the total quantity reported in 1905 and 76 per cent in 1900. The quantity of spruce used increased 761,634 cords, and the value, \$8,648,432. Poplar decreased 8,582 tons in quantity but increased \$564,477 in value. Poplar formed 8.1 per cent of the total quantity of wood reported in 1905 and 12.9 per cent in 1900. Woods other than spruce and poplar were used more largely than in 1900, forming 17.4 per cent of the total quantity at the census of 1905 and 11.1 per cent in 1900. The quantity of other woods reported in 1905 was more than twice as large as the quantity of poplar, although in 1900 the latter was considerably greater.

Of the total wood reported in 1905, 81.1 per cent was domestic and 18.9 per cent Canadian; in 1900 the proportion for domestic was 81.4 per cent and for Canadian 18.6 per cent. Canadian spruce formed 23.7 per cent of the total spruce reported in 1905 and 23.1 per cent in 1900; while Canadian poplar formed 14.2 per cent of the total poplar in 1905 and 7.8 per cent in 1900. It is evident that the pulp mills of this country depend upon Canada more largely for spruce than for poplar, undoubtedly because the demand for poplar is smaller and can be more easily supplied at home. On the whole, Canadian wood was used by American pulp mills to only a slightly greater extent, as reported at the census of 1905, than in 1900.

The proportion of the total cost of materials formed by the cost of all other ingredients, including rags, old paper, manila stock, straw, and other stock, was 20 per cent for 1905 and 22.8 per cent for 1900. In the earlier years of the industry in the United States these ingredients were the principal materials used in paper manufacture, but their relative importance has decreased as the use of wood pulp has developed.

Fuel was a large item of cost, forming 11.8 per cent of the total cost of materials reported in 1905, and 9.8 per cent in 1900. The increase for the five years was \$6,298,770, or 91.6 per cent.

"All other materials" also shows a large increase, forming 9.9 per cent of the total cost of materials reported in 1905 and 6.3 per cent in 1900. The cost of chemicals and pyrites together, although showing an increase, formed only 7.5 per cent of the total cost at the census of 1905, as compared with 9.7 per cent in 1900.

PRODUCTS.

Table 5 shows in detail the kind, quantity, and value of products of the paper and wood pulp industry for 1900 and 1905, with per cent of increase.

TABLE 5.—*Products, by kind, quantity, and value, with per cent of increase: 1905 and 1900.*

	1905	1900	Per cent of increase.
Products, total value.....	\$188,715,189	\$127,326,162	48.2
News paper:			
In rolls for printing—			
Tons.....	840,802	454,572	85.0
Value.....	\$32,763,308	\$15,754,992	108.0
In sheets for printing—			
Tons.....	72,020	114,640	137.2
Value.....	\$3,143,152	\$4,336,882	127.5
Book paper:			
Book—			
Total—			
Tons.....	434,500	282,093	54.0
Value.....	\$31,156,728	\$19,466,804	60.1
Wood fiber, chief ingredient—			
Tons.....	354,540	(?)	.....
Value.....	\$24,840,224	(?)	.....
Rags, chief ingredient—			
Tons.....	79,960	(?)	.....
Value.....	\$6,316,504	(?)	.....
Cover:			
Tons.....	22,150	18,749	18.1
Value.....	\$2,023,986	\$1,665,376	21.5
Plate, lithograph, map, woodcut, etc.:			
Tons.....	19,837	22,366	111.3
Value.....	\$1,458,343	\$2,018,958	127.8
Cardboard, bristol board, card middies, tickets, etc.:			
Tons.....	39,060	28,494	37.1
Value.....	\$2,764,444	\$1,719,813	60.7
Fine paper:			
Writing paper—			
Tons.....	131,934	90,204	46.3
Value.....	\$19,321,045	\$12,222,870	58.1
All other—			
Tons.....	14,898	22,503	133.8
Value.....	\$2,928,125	\$3,673,104	120.3
Wrapping paper:			
Manila—			
Tons.....	86,826	89,419	12.9
Value.....	\$6,136,080	\$5,929,764	3.5
Heavy—			
Tons.....	96,992	82,875	17.0
Value.....	\$4,035,588	\$4,143,240	12.6
Straw—			
Tons.....	54,232	91,794	140.9
Value.....	\$1,389,348	\$2,027,518	131.5
Bogus, or wood manila—			
Tons.....	228,371	203,826	12.0
Value.....	\$10,099,772	\$9,148,677	10.4
All other—			
Tons.....	177,870	67,338	164.1
Value.....	\$8,774,804	\$3,293,174	166.5
Boards:			
Wood pulp—			
Tons.....	60,863	44,187	37.7
Value.....	\$2,347,250	\$1,406,130	66.9
Straw—			
Tons.....	167,278	157,534	6.2
Value.....	\$4,367,560	\$3,187,342	37.0
News—			
Tons.....	38,560	32,119	20.1
Value.....	\$1,174,216	\$930,531	26.2
All other—			
Tons.....	253,950	131,777	92.7
Value.....	\$9,070,531	\$4,829,316	87.8

¹ Decrease.

² Not reported separately.

MANUFACTURES.

TABLE 5.—*Products, by kind, quantity, and value, with per cent of increase: 1905 and 1900—Continued.*

	1905	1900	Per cent of increase.
Products—Continued.			
Other paper products:			
Tissue paper—			
Tons.....	43,925	28,406	54.6
Value.....	\$5,056,438	\$3,486,652	45.0
Blotting paper—			
Tons.....	8,702	4,351	100.0
Value.....	\$1,046,790	\$580,750	80.2
Building, roofing, asbestos, and sheathing papers—			
Tons.....	145,024	96,915	49.6
Value.....	\$4,845,628	\$3,025,967	60.1
Hanging papers—			
Tons.....	62,606	54,330	15.2
Value.....	\$3,013,464	\$2,265,345	33.0
Miscellaneous—			
Tons.....	106,296	49,101	116.5
Value.....	\$6,729,820	\$2,795,841	140.7
Ground wood pulp:			
Made for own use, tons.....	695,576	306,322	127.1
Made to sell as such—			
Tons.....	273,400	280,052	12.4
Value.....	\$4,323,495	\$4,433,699	12.5
Soda fiber:			
Made for own use, tons.....	66,404	78,100	115.0
Made to sell as such—			
Tons.....	130,366	99,014	31.7
Value.....	\$5,159,615	\$3,612,602	42.8
Sulphite fiber:			
Made for own use, tons.....	379,082	144,452	162.4
Made to sell as such—			
Tons.....	376,940	271,585	38.8
Value.....	\$13,661,464	\$10,451,400	30.7
All other products.....	\$1,924,195	\$919,415	109.3

¹ Decrease.

Perhaps the best index of the progress of an industry is the increase or decrease in value of products.

In this as in the other items the paper and wood pulp industry shows a remarkable growth, the increase in value of products being \$61,389,027, or 48.2 per cent.

Table 5 shows that the paper products were relatively more important at the census of 1905 than at that of 1900. The value of paper and paper products formed 86.7 per cent of the total value at the later and 84.8 per cent at the earlier census; while the proportion for wood pulp and fiber shows a corresponding decrease. The decrease in the proportion for wood pulp and fiber does not mean a decrease in the manufacture of these, for the quantity and value increased largely.

News paper.—News paper was the principal kind of paper in quantity at both censuses. The value formed 21.9 per cent of the total value of paper at the census of 1905 and 18.6 per cent in 1900.

The increase in value of news paper produced was \$15,814,586, or 78.7 per cent. News paper in rolls, which forms the great bulk of the news paper made, increased \$17,008,316, or 108 per cent, in value, while news paper in sheets decreased \$1,193,730, or 27.5 per cent.

Table 6 shows, by states, the quantity and value of news paper made in rolls and in sheets, for 1900 and 1905.

TABLE 6.—*PRODUCTION OF NEWS PAPER, BY STATES: 1905 AND 1900.*

STATE.	TOTAL.				IN ROLLS FOR PRINTING.				IN SHEETS FOR PRINTING.			
	1905		1900		1905		1900		1905		1900	
	Tons.	Value.	Tons.	Value.	Tons.	Value.	Tons.	Value.	Tons.	Value.	Tons.	Value.
United States.....	912,822	\$35,906,460	569,212	\$20,091,874	840,802	\$32,763,308	454,572	\$15,754,992	72,020	\$3,143,152	114,640	\$4,336,882
Illinois.....	3,015	128,108	6,400	320,000	2,370	100,362	3,500	175,000	645	27,746	2,900	145,000
Indiana.....	7,315	316,764	122,738	4,122,050	1,315	58,764	112,995	3,756,000	6,000	258,000	9,743	365,450
Maine.....	215,307	7,721,864	810	49,748	213,476	7,635,428	410	24,800	1,831	86,436	400	24,948
Maryland.....												
Massachusetts.....	19,659	904,769	22,194	840,705	19,659	904,769	22,194	840,705				
Michigan.....	8,167	337,747	150	10,200	4,000	165,000	(¹)	(¹)	4,167	172,747	150	10,200
Minnesota.....	25,379	921,421	(¹)	(¹)	18,230	655,180	(¹)	(¹)	7,149	266,241	(¹)	(¹)
New Hampshire.....	80,522	3,176,191	57,878	2,078,604	79,332	3,116,188	45,643	1,606,955	1,190	60,003	12,235	471,649
New York.....	347,546	13,465,093	204,957	6,879,013	330,423	12,719,853	162,153	5,405,452	17,123	745,240	42,804	1,473,561
Ohio.....	4,104	190,600	7,517	354,556	1,852	85,500	4,239	218,159	2,252	105,100	3,278	136,397
Oregon.....	24,195	1,088,775	21,416	856,646	23,797	1,070,865	18,620	744,806	398	17,910	2,796	111,840
Pennsylvania.....	1,140	50,445	1,031	51,543	570	24,795	243	12,128	570	25,650	788	39,415
Vermont.....	34,396	1,397,204	26,166	930,818	34,304	1,393,524	22,685	822,685	92	3,680	3,481	108,133
Virginia.....	1,576	77,180	1,320	72,600	344	17,195			1,232	59,985	1,320	72,600
Wisconsin.....	121,749	5,187,635	90,075	3,253,391	93,149	3,915,176	58,850	2,020,102	28,600	1,272,459	31,225	1,233,289
All other states.....	18,752	942,664	6,560	272,000	17,981	900,709	3,040	127,600	771	41,955	3,520	144,400

¹ Included in "all other states."

At both censuses New York, Maine, Wisconsin, and New Hampshire, in the order named, were the leading states in the manufacture of news paper. The total quantity produced in these 4 states was 83.8 per cent of the total quantity reported in 1905 and 83.6 per cent in 1900, while the value formed 82.3 per cent of the total value for 1905 and 81.3 per cent for 1900.

New York was by far the most important state, reporting 38.1 per cent of the total quantity and 37.5 per cent of the total value for 1905, and 36 per cent of

the quantity and 34.2 per cent of the value for 1900. Massachusetts and Ohio show decreases in quantity, and Indiana, Ohio, and Pennsylvania in value. The total production of news paper in these states, however, is relatively unimportant.

Book paper.—Table 7 shows, by states, the quantity and value of book paper reported in 1900 and 1905.

The quantity of book paper increased 152,407 tons, or 54 per cent, while the value increased \$11,689,924, or 60.1 per cent. The book paper manufactured chiefly

from rags, for which no separate return was made in 1900, had a product of 79,960 tons, valued at \$6,316,-504, at the census of 1905, as shown in Table 19.

TABLE 7.—Production of book paper, by states: 1905 and 1900.

STATE.	1905		1900	
	Tons.	Value.	Tons.	Value.
United States.....	434,500	\$31,156,728	282,093	\$19,466,804
Connecticut.....	1,345	123,000	2,427	264,041
Delaware.....	7,332	528,343	11,931	903,422
Indiana.....	1,807	119,424	3,887	253,868
Maine.....	66,797	5,112,739	30,041	2,660,211
Maryland.....	28,827	1,986,733	14,873	1,017,164
Massachusetts.....	93,439	7,515,045	39,551	3,120,867
Michigan.....	48,742	3,392,859	44,433	2,048,178
New Hampshire.....	12,039	814,679	9,137	618,145
New Jersey.....	4,720	330,417	3,650	249,640
New York.....	29,092	1,932,347	27,611	1,706,565
Ohio.....	17,825	1,273,062	13,861	942,642
Pennsylvania.....	57,779	4,278,092	52,366	3,849,919
Virginia.....	11,026	724,158		
Wisconsin.....	49,989	2,725,520	25,206	1,615,549
All other states.....	3,741	300,290	3,119	216,593

Massachusetts, Maine, Pennsylvania, Michigan, and Wisconsin, in the order named, led in the production of book paper. Massachusetts produced 21.5 per cent of the total quantity of book paper reported in 1905, as compared with only 14 per cent in 1900. This state made the greatest gains in the manufacture of book paper, the increase in quantity being 53,888 tons, or 136.2 per cent, and in value, \$4,394,178, or 140.8 per cent. Maine also made large gains, and increases were reported from Pennsylvania, although the latter state fell from first to third rank. The average value of book paper per ton was \$71.70 for 1905 and \$69 for 1900.

Cover and heavy printing paper.—Table 8 shows, by states, the quantity and value of cover paper, plate, lithograph, woodcut, and similar papers and of cardboard, bristol board, card middles, etc., for 1900 and 1905.

TABLE 8.—PRODUCTION OF HEAVY PAPERS, AND CARD AND BRISTOL BOARDS, ETC., BY STATES: 1905 AND 1900.

STATE.	COVER PAPER.				PLATE, LITHOGRAPH, MAP, WOODCUT, AND SIMILAR PAPERS.				CARDBOARD, BRISTOL BOARD, CARD MIDDLES, TICKETS, ETC.			
	1905		1900		1905		1900		1905		1900	
	Tons.	Value.	Tons.	Value.	Tons.	Value.	Tons.	Value.	Tons.	Value.	Tons.	Value.
United States.....	22,150	\$2,023,986	18,749	\$1,665,376	19,837	\$1,458,343	22,366	\$2,018,958	39,060	\$2,764,444	28,494	\$1,719,813
Connecticut.....	2,895	350,162	3,620	405,247	185	44,400	29	6,960	1,584	68,317	1,773	80,223
Delaware.....	7,732	578,688	500	37,500	2,191	167,460	1,440	115,550			550	41,250
Indiana.....							106	7,000			117	10,000
Maine.....					600	46,500						
Massachusetts.....	2,448	248,820	4,035	367,001	4,117	315,855	11,879	1,007,466	23,504	1,811,431	13,564	1,006,454
Michigan.....	537	38,500	2,964	221,084	2,769	197,608	809	81,528	260	18,216		
New Hampshire.....											1,933	105,908
New York.....	4,325	438,909	3,649	306,509	150	10,080	200	16,000	10,948	432,935	4,382	184,315
Ohio.....	2,779	246,385	2,474	186,624			247	16,749	857	144,632	160	12,680
Pennsylvania.....	570	45,600	1,414	136,297	7,907	581,376	7,356	743,705	1,907	288,913	727	36,778
Vermont.....											4,431	181,671
Virginia.....											799	51,223
Wisconsin.....	376	19,203	93	5,114	1,918	95,064	300	24,000			58	9,311
All other states.....	488	57,719										

Although the production of cover paper was of small importance at both censuses, there was an increase of 3,401 tons, or 18.1 per cent, in quantity and \$358,610, or 21.5 per cent, in value. The manufacture of cover paper was confined largely to Delaware, New York, Connecticut, Massachusetts, and Ohio. These states ranked in the order named. The increase for Delaware was very large, being from 500 tons, valued at \$37,500 in 1900, to 7,732 tons, valued at \$578,688, at the census of 1905.

The manufacture of plate, lithograph, map, woodcut, and other similar papers decreased largely. The total value reported in 1905 was only \$1,458,343. The decrease in quantity was 2,529 tons, or 11.3 per cent, and in value, \$560,615, or 27.8 per cent. Pennsylvania, Massachusetts, Michigan, and Delaware produced the great bulk of the products. Massachusetts shows a large decrease, as this state, which produced over

one-half of the total quantity in 1900, produced less than one-fourth at the census of 1905.

The production of cardboard, bristol board, card middles, etc., was of comparatively little importance at either census, the total production at the census of 1905 being valued at \$2,764,444. The quantity reported in 1905 increased 10,566 tons, or 37.1 per cent, over 1900 and the value, \$1,044,631, or 60.7 per cent. The manufacture of card and bristol boards is concentrated to a large degree in Massachusetts, New York, and Pennsylvania, which together reported 93.1 per cent of the total quantity and 91.6 per cent of the total value. Massachusetts alone produced 60.2 per cent of the total quantity reported at the census of 1905 and 65.5 per cent of the total value.

Wrapping paper.—Table 9 shows, by states, the production of wrapping paper by kind, quantity, and value for 1900 and 1905.

TABLE 9.—PRODUCTION OF WRAPPING

	STATE.	TOTAL.				MANILA.				HEAVY.			
		1905		1900		1905		1900		1905		1900	
		Tons.	Value.	Tons.	Value.	Tons.	Value.	Tons.	Value.	Tons.	Value.	Tons.	Value.
I	United States.....	644,291	\$30,435,592	535,252	\$24,542,373	86,826	\$6,136,080	89,419	\$5,929,764	96,992	\$4,035,588	82,875	\$4,143,240
2	California.....	7,328	375,940										
3	Connecticut.....	7,056	502,544	14,219	743,747	5,428	441,239	2,790	135,322	425	19,000	3,064	134,568
4	Delaware.....	19	760			19	760						
5	Illinois.....	16,386	417,727	32,980	544,575					4,179	184,154		
6	Indiana.....	28,144	874,463	23,010	786,540	1,236	98,896	5,010	264,429	6,294	218,610	3,138	88,950
7	Iowa.....	4,972	116,162	4,990	166,776								
8	Kansas.....	3,000	65,000										
9	Maine.....	89,818	4,075,497	39,659	2,092,298	8,419	489,350			11,768	496,178	953	27,890
10	Maryland.....	1,084	29,188	8,045	422,584	4	158			175	4,900	69	2,260
11	Massachusetts.....	16,150	1,417,915	22,238	1,441,291	7,517	942,813	6,697	546,388	3,074	124,026	10,254	668,118
12	Michigan.....	32,654	1,565,861	20,370	811,750	8,885	486,597	4,840	238,311	2,131	75,260	4,976	200,506
13	New Hampshire.....	27,141	1,184,128	16,933	784,422			1,956	119,862	494	17,230	930	32,219
14	New Jersey.....	18,720	1,471,713	18,959	1,015,645	7,279	704,765	7,377	711,312	2,000	191,531	3	195
15	New York.....	157,186	7,180,993	157,385	7,466,185	20,888	980,273	22,760	1,419,659	12,741	466,846	38,556	2,164,495
16	Ohio.....	44,037	1,786,172	49,854	2,303,199	10,056	777,055	18,579	1,368,700	6,314	164,873	5,646	175,473
17	Oregon.....	7,916	426,774	8,274	375,960			300	24,000	191	8,595	90	3,960
18	Pennsylvania.....	58,192	3,154,038	36,110	2,024,486	5,964	582,976	6,930	585,224	31,043	1,366,455	5,921	265,034
19	Vermont.....	17,633	891,106	20,295	973,792			5,722	188,826	2,379	83,265	873	23,134
20	Virginia.....	2,450	104,600	762	15,250	100	4,000						
21	West Virginia.....	2,054	232,864	1,525	89,000	2,054	232,864	600	60,000			800	24,000
22	Wisconsin.....	94,454	4,200,058	46,889	2,048,805	8,703	378,655	5,598	257,331	9,429	427,105	6,493	301,600
23	All other states.....	7,897	362,089	12,755	436,068	274	15,679	260	10,400	4,355	187,560	1,089	30,898

¹ Included in "all other states."

PAPER, BY STATES: 1905 AND 1900.

STRAW.				BOGUS, OR WOOD, MANILA.				ALL OTHER.				
1905		1900		1905		1900		1905		1900		
Tons.	Value.	Tons.	Value.	Tons.	Value.	Tons.	Value.	Tons.	Value.	Tons.	Value.	
54,232	\$1,389,348	91,794	\$2,027,518	228,371	\$10,099,772	203,826	\$9,148,677	177,870	\$8,774,804	67,338	\$3,293,174	1
				6,280	335,100	(1)	(1)	1,048	40,840			2
				970	31,500	1,832	81,426	233	10,805	6,533	392,431	3
12,207	233,573	29,993	440,261							2,987	104,314	4
12,025	256,300	8,621	178,429	7,079	265,467	5,563	225,032	1,510	35,190	658	29,700	5
3,958	87,746	4,790	160,776									6
1,800	35,000	(1)	(1)					1,014	28,416	200	6,000	7
								1,200	30,000			8
150	4,500	850	25,739	66,631	2,935,969	31,849	1,608,605	3,000	154,000	6,857	455,863	9
		1,187	9,500	755	19,630	4,856	283,006			2,270	111,579	10
				671	33,674	2,256	107,762	4,888	317,402	1,844	109,523	11
1,262	31,130	2,305	40,150	2,050	91,219	4,663	215,423	18,326	881,655	3,586	117,360	12
				26,647	1,166,898	13,963	629,401			84	2,940	13
		8,329	177,138	650	15,511	3,000	90,000	8,791	559,906	250	37,000	14
4,369	155,970	14,650	543,084	75,262	3,359,980	74,724	3,092,370	43,926	2,217,924	6,695	246,577	15
9,078	207,610	10,619	211,234	6,100	208,150	7,610	324,038	12,489	428,484	7,400	223,754	16
2,325	93,179	2,184	75,000	5,000	285,000	4,500	225,000	400	40,000	1,200	48,000	17
1,100	32,812	1,805	54,110	1,571	72,898	11,457	557,003	18,514	1,098,897	9,997	563,115	18
				8,517	445,289	13,700	761,832	6,737	362,552			19
				2,350	100,600							20
										762	15,250	21
										125	5,000	22
5,898	240,008	2,861	52,897	16,838	705,820	17,981	690,929	53,886	2,448,470	13,956	746,048	23
360	11,520	3,600	59,200	1,000	27,067	5,872	256,850	1,908	120,263	1,934	78,720	24

Wrapping paper, which was first in value of products in 1900, was third at the census of 1905, although the production increased 109,039 tons, or 20.4 per cent. The increase in value was \$5,893,219, or 24 per cent.

Bogus, or wood, manila wrapping paper was the principal specified kind of wrapping paper reported in 1905 and in 1900. The increase in the quantity was 24,545 tons, or 12 per cent, and in the value, \$951,095, or 10.4 per cent. New York, Maine, and New Hampshire, in the order named, were the leading states at the census of 1905, reporting 73.8 per cent of the total quantity, compared with 59.1 per cent in 1900. New York alone reported 33 per cent of the total in 1905 and 36.7 per cent in 1900. Maine shows the greatest increase, reporting 29.2 per cent of the total quantity in 1905, compared with 15.6 per cent in 1900. The average value per ton for the United States was \$44.23 at the census of 1905 and \$44.88 in 1900.

The production of manila wrapping paper decreased 2,593 tons, or 2.9 per cent, in quantity, but increased \$206,316, or 3.5 per cent, in value. New York, Ohio, Michigan, and Wisconsin, in the order named, were the leading states in quantity produced, and New York, Massachusetts, Ohio, and New Jersey, in value. New York, Ohio, and Indiana show large decreases, both in quantity and value; while Massachusetts, Michigan, and Connecticut show large increases. The average value per ton was \$70.67 at the census of 1905 and \$66.31 in 1900. There was a great variation in the average value for the different states—from \$125.42 per ton for Massachusetts to \$39.50 for Maryland.

The production of heavy wrapping paper increased 14,117 tons in quantity, but decreased \$107,652 in value. The average value per ton was \$41.61 at the census of 1905 and \$49.99 in 1900. According to value of production, Pennsylvania, Maine, and New York, in the order named, were the leading states in 1905. The first 2 of these states show remarkable increases, both in the quantity and value, the increase for Pennsylvania being \$1,101,421, or 415.6 per cent, and for Maine, \$468,348, or nearly seventeenfold. On the other hand, New York and Massachusetts, which were the leading states in 1900, show remarkable decreases. New York reported 52.2 per cent of the total value in 1900, but only 11.6 per cent at the census of 1905.

Straw wrapping paper was relatively of little importance in 1900 and of even less importance at the census of 1905, there being a decrease of 37,562 tons, or 40.9 per cent, in quantity and \$638,170, or 31.5 per cent, in value. Indiana, Wisconsin, Illinois, and Ohio were the leading states, and, together, reported over two-thirds of the total quantity and value. New York,

which was the leading state in 1900, shows a decrease of 10,281 tons, or 70.2 per cent, in quantity and of \$387,114, or 71.3 per cent, in value. Illinois, the second state in 1900, shows a decrease of 17,786 tons, or 59.3 per cent, in quantity and of \$206,688, or 46.9 per cent, in value. Indiana and Wisconsin show large increases. None of the New England states reported the manufacture of straw wrapping paper, which is confined largely to the straw producing states of the middle West.

Under the caption "all other" is embraced an assortment of wrapping paper not elsewhere specified. This item shows very large increases in both quantity and value. The value formed 28.8 per cent of the total value of wrapping paper reported in 1905 and 13.4 per cent of the total in 1900. The increase in quantity was 110,532 tons, or 164.1 per cent, and in value, \$5,481,630, or 166.5 per cent.

Wisconsin, New York, Pennsylvania, and Michigan, in the order named, were the leading states in the manufacture of "all other" wrapping paper. Each of these states shows a large increase in both quantity and value. The increases for New York were 37,231 tons, or over fivefold, in quantity and \$1,971,347, or over sevenfold, in value. These increases more than offset the decreases shown for this state in manila wrapping paper. Michigan also shows large increases, that in quantity being 14,740 tons, or over fourfold, and in value \$764,295, or over sixfold. These increases are much greater than the decreases shown for this state in heavy and in bogus, or wood, manila wrapping paper. Maine, which was third in the value of all other wrapping paper produced in 1900, and Connecticut, which was fourth, show large decreases in quantity and in value. These decreases, however, are much less for Maine than the increases in the manufacture of specified kinds of wrapping paper. The average value of "all other" wrapping paper per ton was \$49.33 at the census of 1905 and \$48.91 in 1900.

Fine paper.—Table 10 shows, by states, the quantity and value of fine paper reported in 1900 and 1905.

The manufacture of fine paper was fourth in importance at both censuses. The total quantity reported in 1905 shows an increase of 34,125 tons, or 30.3 per cent, over the quantity reported in 1900; and the value, an increase of \$6,353,196, or 40 per cent. This branch of paper manufacture is concentrated to a larger degree than any other. At the census of 1905 Massachusetts alone reported 55 per cent of the total quantity of fine paper produced and 67.3 per cent of the total value. Pennsylvania, Wisconsin, and Ohio ranked second, third, and fourth, respectively, but the total value of fine paper for Pennsylvania was less than one-sixth that for Massachusetts.

TABLE 10.—PRODUCTION OF FINE PAPER. BY STATES: 1905 AND 1900.

STATE.	TOTAL.				WRITING PAPER.				ALL OTHER.			
	1905		1900		1905		1900		1905		1900	
	Tons.	Value.	Tons.	Value.	Tons.	Value.	Tons.	Value.	Tons.	Value.	Tons.	Value.
United States.....	146,832	\$22,249,170	112,707	\$15,895,974	131,934	\$19,321,045	90,204	\$12,222,870	14,898	\$2,928,125	22,503	\$3,673,104
Connecticut.....	6,439	864,055	2,298	361,412	3,430	471,269	2,001	323,672	3,009	392,786	297	37,740
Delaware.....	590	53,950							590	53,950		
Maine.....	4,400	385,000			4,400	385,000						
Massachusetts.....	80,775	14,971,411	68,055	11,298,628	76,503	13,484,650	54,791	8,751,556	4,272	1,486,761	13,264	2,547,072
Michigan.....	2,647	256,062	1,592	161,427	2,190	215,971	1,592	161,427	457	40,091		
New Hampshire.....	414	18,677							414	18,677		
New Jersey.....			60	6,000			60	6,000				
New York.....	55	6,604	1,255	136,959	55	6,604	519	70,115			706	66,844
Ohio.....	8,722	1,057,920	4,095	57,172	6,552	816,815	3,315	444,479	2,170	241,105	780	133,693
Pennsylvania.....	22,095	2,322,427	19,944	1,749,511	19,857	1,738,457	16,824	1,379,594	2,238	583,970	3,120	369,917
Vermont.....	948	54,785							948	54,785		
Virginia.....	166	12,956	720	55,506	166	12,956	720	55,506				
West Virginia.....			50	6,000			50	6,000				
Wisconsin.....	17,353	2,066,243	13,991	1,489,199	17,333	2,066,243	10,332	1,024,521			3,659	464,678
All other states.....	2,248	179,080	677	53,160	1,448	123,080			800	56,000	677	53,160

Writing paper increased 41,730 tons, or 46.3 per cent, in quantity and \$7,098,175, or 58.1 per cent, in value; while "all other" fine paper decreased 7,605 tons, or 33.8 per cent, in quantity and \$744,979, or 20.3 per cent, in value. Massachusetts reported 58 per cent of the total quantity of writing paper reported in 1905 and 69.8 per cent of the total value. The increase in quantity for Massachusetts between 1900 and 1905 was 21,712 tons and in value, \$4,733,094. Of all the states presented in Table 10 decreases are shown only for New York and Virginia, where the production was small, while New Jersey did not report paper of this class at the census of 1905.

Massachusetts was first in the manufacture of "all other" fine paper at both censuses, but while in 1900 this state reported 58.9 per cent of the total quantity of such paper produced and 69.3 per cent of the value, in 1905 it reported only 28.7 per cent of the quantity produced and only 50.8 per cent of the value. The decrease was 8,992 tons, or 67.8 per cent, in quantity and \$1,060,311, or 41.6 per cent, in value. Pennsylvania, Connecticut, and Ohio ranked second, third, and fourth, respectively, in the value of "all other" fine paper produced, but the value for Pennsylvania was only a little more than one-third that for Massachusetts. Connecticut shows great gains both in the quantity produced and in the value.

The average value of writing paper per ton was \$146.44 at the census of 1905 and \$135.50 in 1900. The average value of writing paper manufactured in Massachusetts was \$176.26 per ton. The average value of "all other" fine paper per ton was \$196.54 at the census of 1905 and \$163.23 in 1900. The average value of "all other" fine paper manufactured in Massachusetts was \$348.02 per ton.

Boards.—Table 11 shows, by states, the total production of boards, by kind, quantity, and value, for 1900 and 1905.

Boards ranked fifth in value among the enumerated products of the paper and pulp industry. Between 1900 and 1905 the quantity manufactured increased 155,034 tons, or 42.4 per cent, and the value \$6,606,238, or 63.8 per cent. Each class of boards shows a large increase in quantity and in value. The principal class was "all other" board, the value of which formed 53.4 per cent of the total value of all boards at the census of 1905, and 46.6 per cent at that of 1900. The increase for this class was 122,173 tons in quantity and \$4,241,215 in value. It will be observed that 78.8 per cent of the total increase in quantity for all boards and 64.2 per cent of the total increase in value was reported for "all other" board. New York, Connecticut, Illinois, and Ohio, in the order named, were the leading states, all of them showing large increases, these increases for New York being 48,062 tons, or nearly threefold, in quantity and \$1,738,800, or about threefold, in value.

Strawboard was the most important specified class of boards at both censuses. Although the quantity produced increased only 9,744 tons, or 6.2 per cent, the value increased \$1,180,218, or 37 per cent. Indiana, Ohio, and Illinois, in the order named, were the leading states in the manufacture. These states are in the great straw producing section of the country—the middle West—and produced nearly seven-tenths of the entire quantity of strawboard reported at the census of 1905 and about two-thirds of the total value. Indiana alone produced over one-third of the total quantity. The average value of strawboard per ton was \$26.11 as reported in 1905 and \$20.23 in 1900.

MANUFACTURES.

TABLE 11.—PRODUCTION OF PAPER

STATE.	TOTAL.				WOOD PULP.			
	1905		1900		1905		1900	
	Tons.	Value.	Tons.	Value.	Tons.	Value.	Tons.	Value.
1 United States.....	520,651	\$16,959,557	365,617	\$10,353,319	60,863	\$2,347,250	44,187	\$1,406,130
2 California.....	3,507	143,587						
3 Connecticut.....	64,610	2,354,053	30,762	1,158,499	16,569	554,140		
4 Illinois.....	53,590	1,522,415	37,428	814,081	200	6,000	900	38,250
5 Indiana.....	83,414	2,217,116	93,775	2,041,881	3,322	110,483	8,137	212,600
6 Iowa.....	3,000	77,350						
7 Kansas.....	6,082	137,290						
8 Maine.....	13,477	523,568	14,843	520,087	10,178	347,159	11,802	336,335
9 Maryland.....	4,174	112,207	5,172	106,719				
10 Massachusetts.....	27,020	1,338,346	17,238	954,111	2,656	209,867	2,846	144,435
11 Michigan.....	26,382	812,781	14,051	348,947	11,500	370,070	5,350	134,500
12 New Hampshire.....	8,268	350,277	5,618	241,184				
13 New Jersey.....	37,692	1,174,348	21,165	703,180				
14 New York.....	90,094	3,347,317	40,394	1,368,585	11,011	508,000	12,133	411,655
15 Ohio.....	60,269	1,716,740	53,886	1,167,360	760	30,400		
16 Pennsylvania.....	26,398	688,358	20,486	595,414			300	6,000
17 Vermont.....	4,599	183,764	3,763	183,236	2,993	108,580	2,719	122,355
18 Virginia.....	4,199	161,658	2,236	65,735	1,507	97,959		
19 West Virginia.....	3,709	93,790	3,500	73,500				
20 Wisconsin.....	167	4,592			167	4,592		
21 All other states.....			1,300	20,800				

*Included in "all other states."

[illegible]

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Wood pulp board increased 16,676 tons, or 37.7 per cent, in quantity and \$941,120, or 66.9 per cent, in value. Connecticut, New York, and Michigan, in the order named, were the leading states in value of production, reporting over one-half of both the quantity and value at the census of 1905. Connecticut reported 16,569 tons of wood pulp board at the census of 1905, valued at \$554,140. No wood pulp board was reported by this state in 1900. Michigan reported a larger quantity than New York but a smaller value. The increase for the state was 6,150 tons in quantity and \$235,570 in value. The average value of wood pulp board per ton was \$38.57 as reported in 1905 and \$31.82 in 1900.

News board was relatively of little importance as returned at the census of 1905. The production increased 6,441 tons, or 20.1 per cent, in quantity and \$243,685, or 26.2 per cent, in value. New Jersey and New York ranked first and second, respectively, producing 59.9 per cent of the total quantity and 61.1 per cent of the total value. New Jersey shows a slight decrease in quantity and in value, while New York shows large increases. Connecticut, which was second in value of products in 1900, shows large decreases in both quantity and value. The average value of news board per ton was \$30.45 at the census of 1905 and \$28.97 in 1900.

Other paper products.—Table 12 shows, by states, the production of all other paper products by kind, quantity, and value for 1900 and 1905.

Tissue paper was the principal item enumerated under the head of "other paper products." Between 1900 and 1905 the manufacture of tissue paper increased 15,519 tons, or 54.6 per cent, in quantity and \$1,569,786, or 45 per cent, in value. This branch of the paper industry was concentrated largely in New York, New Jersey, and Wisconsin, which together produced over two-thirds of the total quantity manufactured at the census of 1905 and almost two-thirds of the total value. These 3 states ranked in the order named. New York, which alone manufactured 41.2 per cent of the total

quantity, shows an increase of 9,686 tons, or 115.1 per cent, in quantity and \$995,966, or 129.5 per cent, in value. Wisconsin also shows large increases. It is noteworthy that the average value of tissue paper per ton decreased from \$122.74 in 1900 to \$115.12 at the census of 1905.

The manufacture of building paper, which term also includes roofing, asbestos, and sheathing paper, increased 48,109 tons, or 49.6 per cent, in quantity and \$1,819,661, or 60.1 per cent, in value. Pennsylvania produced 46.7 per cent of the total quantity of building paper reported in 1905 and 38.1 per cent of the total value. New Jersey, which was third in value of products, manufactured less than one-third of the quantity reported by Pennsylvania. The average value per ton was \$33.41 for 1905 and \$31.22 for 1900.

The quantity of hanging, or wall, paper manufactured increased 8,276 tons, or 15.2 per cent, and the value \$748,119, or 33 per cent. The manufacture is concentrated largely in New York, which reported in 1900 72.9 per cent of the total quantity produced and in 1905, 68.2 per cent. The average value per ton was \$48.13 at the census of 1905 and \$41.70 in 1900.

Although blotting paper is relatively of little importance, there was an increase as reported in 1905 over 1900 of 4,351 tons, or 100 per cent, in quantity and of \$466,040, or 80.2 per cent, in value. The manufacture is concentrated largely in Virginia, which in 1905 reported 38.4 per cent of the total quantity and 35.7 per cent of the total value. The average value per ton decreased from \$133.48 for 1900 to \$120.29 for 1905.

Miscellaneous paper is by far the most important item reported under "other paper products," and shows the largest increases, both in quantity and in value. The increase in quantity was 57,195 tons, or 116.5 per cent, and in value, \$3,933,979, or 140.7 per cent. Ohio and Massachusetts reported in 1905, 61.3 per cent of the total value of such paper and in 1900 only 16.3 per cent. These 2 states ranked in the order named and show remarkable increases, as the above proportions indicate.

MANUFACTURES.

TABLE 12.—PRODUCTION OF TISSUE, BLOTING, BUILDING, HANGING,

STATE.	TISSUE.				BLOTING.			
	1905		1900		1905		1900	
	Tons.	Value.	Tons.	Value.	Tons.	Value.	Tons.	Value.
1 United States.....	43,925	\$5,056,438	28,406	\$3,486,652	8,702	\$1,046,790	4,351	\$580,750
2 California.....	1,000	80,000						
3 Connecticut.....	2,169	406,675	1,740	283,378	750	111,107	635	99,969
4 Delaware.....								
5 Illinois.....								
6 Indiana.....	740	90,264	325	31,065				
7 Iowa.....								
8 Maine.....								
9 Maryland.....								
10 Massachusetts.....	2,450	419,650	2,479	416,440	1,297	168,575	788	111,627
11 Michigan.....			40	3,915			13	1,380
12 Minnesota.....								
13 New Hampshire.....	2,508	292,605	3,973	339,120				
14 New Jersey.....	6,162	953,022	4,480	943,877				
15 New York.....	18,101	1,764,911	8,415	768,945				
16 Ohio.....	1,461	172,421	639	62,131	1,050	134,929	825	74,598
17 Oregon.....								
18 Pennsylvania.....	320	31,101	1,377	201,747	1,660	198,900	103	12,800
19 Vermont.....	3,045	274,411	1,918	180,303			180	29,416
20 Virginia.....			60	5,400	3,344	373,183	1,807	251,400
21 West Virginia.....								
22 Wisconsin.....	5,989	571,378	2,960	250,331				
23 All other states.....					601	60,096		

¹Included in "all other states."

AND MISCELLANEOUS PAPERS, BY STATES: 1905 AND 1900.

BUILDING, ETC.				HANGING.				MISCELLANEOUS.				
1905		1900		1905		1900		1905		1900		
Tons.	Value.	Tons.	Value.	Tons.	Value.	Tons.	Value.	Tons.	Value.	Tons.	Value.	
145,024	\$4,845,628	96,915	\$3,025,967	62,606	\$3,013,464	54,330	\$2,265,345	106,296	\$6,729,820	49,101	\$2,795,841	1
920	40,500											2
1,481	43,976	1,789	41,147			113	11,208	1,135	134,042	402	37,765	3
		700	13,200					212	25,355	365	58,483	4
7,954	177,987							6,956	113,213	3,650	72,962	5
				2,000	80,000			21,482	212,607	3,908	240,614	6
2,996	59,320	2,500	50,000							1,350	27,000	7
2,524	84,161	456	13,308	4,152	189,513	4,124	139,791	2,525	104,596			8
7,153	917,682	14,372	615,038	3,046	182,433	2,204	143,080	359	8,999	58	4,746	9
3,303	100,604	1,337	34,439					15,186	1,325,438	5,852	226,524	10
								2,876	154,486	2,971	148,272	11
175	5,650	(1)	(1)					2,771	97,697	(1)	(1)	12
20,812	595,617	7,133	236,400					173	11,769	2,815	136,122	13
10,963	352,521	8,044	260,051	42,722	1,978,650	39,593	1,562,465	2,880	86,450	1,028	33,380	14
								8,858	790,040	9,556	762,693	15
15,400	499,692	7,275	213,603					28,127	2,799,584	4,530	230,266	16
		1,410	53,580							100	4,000	17
67,797	1,847,762	45,923	1,313,436	7,814	409,560	4,416	192,731	2,508	223,490	6,333	447,710	18
				1,118	100,699	900	82,803	9,696	580,457	1,366	93,986	19
						2,800	126,000					20
										113	18,000	21
2,608	86,846	2,608	86,846	1,754	72,619	120	7,267	285	19,988			22
948	33,280	3,368	94,919					267	41,609	4,431	247,648	23
										273	5,670	24

Pulp and fiber.—Table 13 shows, by states, the total quantity of wood pulp and fiber produced at the censuses of 1900 and 1905.

TABLE 13.—*Production of wood pulp and fiber, by states: 1905 and 1900.*

STATE.	Census.	Total (tons).	Ground wood pulp (tons).	Soda fiber (tons).	Sulphite fiber (tons).
United States.....	1905	1,921,768	968,976	196,770	756,022
	1900	1,179,535	586,374	177,124	416,037
California ¹	1905	7,500	3,000	.....	4,500
Delaware.....	1905	13,206	.....	13,206	.....
	1900	8,823	.....	8,823	.....
Illinois ²	1905	6,500	6,500	.....	.....
Indiana.....	1905	2,687	2,687	.....	.....
	1900	23,032	10,418	12,614	.....
Maine.....	1905	456,921	230,340	53,257	173,324
	1900	231,619	129,878	44,162	57,579
Maryland.....	1905	22,658	.....	22,658	.....
	1900	19,934	.....	3,947	15,987
Massachusetts.....	1905	28,445	14,007	2,000	12,438
	1900	24,964	13,110	1,771	10,083
Michigan.....	1905	38,612	14,079	.....	24,533
	1900	20,707	6,676	1,033	12,998
Minnesota ²	1905	22,479	22,479	.....	.....
New Hampshire.....	1905	173,888	58,693	.....	115,195
	1900	119,590	31,738	.....	87,852
New Jersey ¹	1905	10,281	.....	.....	10,281
New York.....	1905	606,014	379,029	26,966	200,019
	1900	394,635	245,293	24,346	124,996
Ohio.....	1905	29,274	4,425	.....	24,849
	1900	13,805	4,950	1,835	7,020
Oregon.....	1905	31,549	21,877	.....	9,672
	1900	1,154	1,154	.....	.....
Pennsylvania.....	1905	83,114	19,000	53,682	10,432
	1900	85,433	4,505	61,662	19,266
Vermont.....	1905	60,747	51,839	.....	8,908
	1900	64,951	48,153	9,000	7,798
Virginia.....	1905	42,307	1,850	15,657	24,800
	1900	6,117	.....	4,601	1,516
West Virginia.....	1905	28,695	9,137	.....	19,558
	1900	13,471	6,794	.....	6,677
Wisconsin.....	1905	241,537	124,746	3,744	113,047
	1900	137,098	77,305	.....	59,793
All other states.....	1905	15,354	5,288	5,600	4,466
	1900	14,202	6,400	3,330	4,472

¹ None reported in 1900.

² Included in "all other states" in 1900.

The statistics for wood pulp and fiber shown in Table 13 include the figures for mills making pulp only as well as the figures for mills which manufacture both paper and pulp.

In the production of pulp and fiber New York, Maine, Wisconsin, and New Hampshire were, in the order named, the leading states in 1905 reporting 76.9 per cent of the total quantity. The production for New York and Maine combined was 55.3 per cent of the

total and for New York alone, 31.5 per cent. The largest increase was for Maine, and was 225,302 tons, or 97.3 per cent. The increase for New York was 211,379 tons; for Wisconsin, 104,439 tons; and for New Hampshire, 54,298 tons.

Ground wood pulp was first in importance at both censuses, forming 50.4 per cent of the total quantity of pulp and fiber reported in 1905 and 49.7 per cent in 1900. As compared with 1900 the quantity of ground wood reported in 1905 increased 382,602 tons, or 65.2 per cent. New York, Maine, and Wisconsin together produced 75.8 per cent of the total wood pulp reported in 1905 and 77.2 per cent in 1900. New York alone produced 39.1 per cent of the total in 1905. Each of the above-named states shows a large increase, that for New York being 133,736 tons, or 54.5 per cent; for Maine, 100,462 tons, or 77.4 per cent; and for Wisconsin, 47,441 tons, or 61.4 per cent.

Sulphite fiber constituted 39.4 per cent of the total pulp and fiber reported in 1905 and 35.3 per cent in 1900. The increase at the census of 1905 over 1900 in the quantity produced amounted to 339,985 tons, or 81.7 per cent. New York, Maine, New Hampshire, and Wisconsin, in the order named, were the leading states at the census of 1905, their combined output being 79.6 per cent of all the sulphite fiber reported in 1905. The largest increase was shown for Maine, and was 115,745 tons, or 201 per cent. The increase for New York was 75,023 tons; for Wisconsin, 53,254 tons; and for New Hampshire, 27,343 tons. Sulphite fiber formed the great bulk of the pulp and fiber produced in Michigan, New Hampshire, Ohio, Virginia, and West Virginia.

Soda fiber formed only 10.2 per cent of the total pulp and fiber produced as reported at the census of 1905, as compared with 15 per cent in 1900. Nevertheless, the quantity produced increased 19,646 tons, or 11.1 per cent. Pennsylvania and Maine produced 54.3 per cent of the total quantity in 1905. New York and Maryland ranked third and fourth, respectively. These 4 states manufactured 79.6 per cent of the total production. Maryland shows an increase of 18,711 tons; Virginia, 11,056 tons; and Maine, 9,095 tons. In Pennsylvania there was a decrease of 7,980 tons. Soda fiber was the only class of pulp and fiber made in Delaware and Maryland as reported in 1905, and formed the great bulk of the product of Pennsylvania.

Table 14 shows, by states, the quantity and value of pulp and fiber made to sell, for 1900 and 1905.

TABLE 14.—PRODUCTION OF WOOD PULP AND FIBER MADE TO SELL, BY STATES: 1905 AND 1900.

STATE.	Cen- sus.	TOTAL.		GROUND WOOD PULP.		SODA FIBER.		SULPHITE FIBER.	
		Tons.	Value.	Tons.	Value.	Tons.	Value.	Tons.	Value.
United States.....	1905	780,706	\$23,144,574	273,400	\$4,323,495	130,366	\$5,159,615	376,940	\$13,661,484
	1900	650,651	18,497,701	280,052	4,433,699	99,014	3,612,602	271,585	10,451,400
Delaware.....	1905	13,206	550,000			13,206	550,000		
	1900	8,823	430,313			8,823	430,313		
Illinois ¹	1905	2,210	44,200	2,210	44,200				
Indiana.....	1905	160	3,360	160	3,360				
	1900	16,539	454,279	3,925	75,870	12,614	378,409		
Maine.....	1905	168,117	4,888,809	64,480	922,206	45,376	1,773,899	58,261	2,192,704
	1900	139,053	3,828,629	78,954	1,168,887	32,956	1,269,141	27,143	1,390,601
Maryland.....	1905	22,658	885,527			22,658	885,527		
	1900	18,689	810,480			2,702	139,896	15,987	670,584
Massachusetts.....	1905	8,738	415,975					8,738	415,975
	1900	8,940	426,672	100	2,000	1,771	70,840	7,069	353,832
Michigan.....	1905	11,158	407,286	2,015	64,469			9,143	342,817
	1900	8,184	346,516	256	5,284	1,033	62,004	6,895	279,228
Minnesota ¹	1905	5,000	100,000	5,000	100,000				
New Hampshire.....	1905	92,459	3,031,345	564	10,800			91,895	3,020,545
	1900	88,295	2,916,853	7,577	205,575			80,718	2,711,278
New Jersey ¹	1905	10,281	330,233					10,281	330,233
New York.....	1905	235,442	5,621,342	128,695	1,921,371	17,379	623,231	89,368	3,076,740
	1900	214,299	5,232,451	122,607	1,896,783	15,034	555,746	76,658	2,779,922
Ohio.....	1905	9,849	413,151					9,849	413,151
	1900	4,370	174,809					4,370	174,809
Oregon.....	1905	900	14,900	900	14,900				
	1900	954	15,510	954	15,510				
Pennsylvania.....	1905	18,880	844,098			17,465	787,098	1,415	57,000
	1900	16,829	710,539	1,100	12,100	11,668	470,214	4,061	228,225
Vermont.....	1905	23,529	343,386	23,529	343,386				
	1900	42,389	728,748	29,389	460,748	9,000	108,000	4,000	160,000
Virginia.....	1905	40,147	1,580,660	1,065	21,000	14,282	539,860	24,800	1,019,800
	1900	4,929	199,272			3,413	128,039	1,516	71,233
West Virginia.....	1905	28,695	916,099	9,137	156,052			19,558	760,047
	1900	13,471	299,027	6,794	112,381			6,677	186,646
Wisconsin.....	1905	89,277	2,754,203	35,645	721,751			53,632	2,032,452
	1900	63,657	1,855,953	28,396	478,561			35,261	1,377,392
All other states.....	1900	1,230	67,650					1,230	67,650

¹ None reported in 1900.

Of the total pulp and fiber reported at the census of 1905, 40.6 per cent was made to sell; the proportion in 1900 was 55.2 per cent. A considerably larger proportion of pulp and fiber was used in the factories producing it as reported in 1905 than in 1900. This indicates that there is a growing tendency to combine the manufacture of wood pulp and the finished product.

The ground wood pulp made to sell decreased 6,652 tons in quantity and \$110,204 in value. The proportion made to sell formed only 28.2 per cent of the total ground wood pulp as reported in 1905 and 47.8 per cent of the total in 1900.

Although sulphite fiber was second in importance in the total production of pulp and fiber it was first in the production made for sale. Of the wood pulp and fiber made to sell, sulphite fiber constituted 48.3 per cent in quantity and 59 per cent in value. At the census of 1905, as compared with 1900, this production had increased by 105,355 tons, or 38.8 per cent, in quantity

and \$3,210,064, or 30.7 per cent, in value. Despite these large increases, the quantity was only 19.6 per cent of the total quantity of pulp and fiber made both for use and for sale, as compared with 23 per cent in 1900. The quantity made by establishments for their own use had therefore increased more largely than that made for sale.

Soda fiber made to sell increased 31,352 tons, or 31.7 per cent, in quantity and \$1,547,013, or 42.8 per cent, in value. Among the three classes of pulp products made for sale the value of soda fiber was much greater than the value of ground wood pulp, though the quantity was considerably less. Of the total soda fiber reported in 1905, 66.3 per cent was made for sale, as compared with 55.9 per cent in 1900.

The following tabular statement shows, for the United States and the 6 states leading in production for sale in 1905, the percentage which the quantity of each class of pulp and fiber products made for sale formed of the total production for 1900 and 1905:

Wood pulp and fiber made for sale—per cent of total production, for six leading states and the United States: 1905 and 1900.

STATE.	TOTAL PULP AND FIBER.		GROUND WOOD PULP.		SULPHITE FIBER.		SODA FIBER.	
	1905	1900	1905	1900	1905	1900	1905	1900
United States.	40.6	55.2	28.2	47.8	49.9	65.3	66.3	55.9
New York.....	38.9	54.3	34.0	50.0	44.7	61.3	64.4	61.8
Maine.....	36.8	60.0	28.0	60.8	33.6	47.1	85.2	74.6
New Hampshire.....	53.2	73.8	1.0	23.9	79.8	91.9	(1)	(1)
Wisconsin.....	37.0	46.4	28.6	36.7	47.4	59.0	(1)	(1)
Vermont.....	38.7	65.2	45.4	61.0	(1)	51.3	(1)	100.0
Pennsylvania.....	22.7	19.7	(1)	24.4	13.6	21.1	32.5	18.9

¹ No production reported.

The proportion of pulp and fiber made to sell was considerably less as reported in 1905 than in 1900 for each of the specified states except Pennsylvania. This fact is more significant when it is noted that New York and Maine, which together reported 55.3 per cent of the total production in 1905, show large decreases in the proportion made for sale. None of the states in 1905 reported the sale of more than 38.9 per cent of the total production except New Hampshire, which reported 53.2 per cent.

The proportion of the total ground wood pulp sold, as reported at the census of 1905, was considerably less than the proportion sold in 1900. A smaller proportion of this class of pulp products was sold than of any other.

The sale of sulphite fiber, which is rapidly becoming of as much importance as ground wood pulp, was also relatively less at the census of 1905 than that of 1900. No state reported in 1905 the sale of as much as one-half of its production except New Hampshire, which reported 79.8 per cent, but New Hampshire, like the other states, showed a large decrease in the proportion sold.

In the United States as a whole the proportion of soda fiber sold was greater by 10.4 per cent as reported in 1905 than in 1900. An increase is also shown for the several states mentioned in the foregoing tabular statement. Pennsylvania, the first state in the production of such fiber, although showing an increased proportion sold, nevertheless reported the sale of a little less than one-third of its production. Maine, in which the production of soda fiber was only slightly less than in Pennsylvania, reported the sale of 85.2 per cent of its production.

The average value per ton of ground wood pulp made to sell was \$15.81 as reported in 1905 and \$15.83 in 1900. The average value of the sulphite fiber sold decreased from \$38.48 in 1900 to \$36.24 in 1905, while the average value of soda fiber increased from \$36.49 to \$39.58.

Table 15 shows, by states, the quantity of wood pulp and fiber made for own use in 1900 and 1905.

TABLE 15.—Production of wood pulp and fiber made for own use, by states: 1905 and 1900.

STATE.	Census.	Total (tons).	Ground wood pulp (tons).	Soda fiber (tons).	Sulphite fiber (tons).
United States.....	1905 1900	1,141,062 528,884	695,576 306,322	66,404 78,110	379,082 144,452
California ¹	1905	7,500	3,000	.....	4,500
Illinois ¹	1905	4,290	4,290	.....	.....
Indiana.....	1905 1900	2,527 6,493	2,527 6,493	.....	.....
Maine.....	1905 1900	288,304 92,566	165,860 50,924	7,881 11,206	115,063 30,436
Maryland ²	1900	1,245	.....	1,245	.....
Massachusetts.....	1905 1900	19,707 16,024	14,007 13,010	2,000	3,700 3,014
Michigan.....	1905 1900	27,454 12,523	12,064 6,420	.....	15,390 6,103
Minnesota ²	1905	17,479	17,479	.....	.....
New Hampshire.....	1905 1900	81,429 31,295	58,129 24,161	.....	23,300 7,134
New York.....	1905 1900	370,572 180,336	250,334 122,686	9,587 9,312	110,651 48,338
Ohio.....	1905 1900	19,425 9,435	4,425 4,950	1,835	15,000 2,650
Oregon.....	1905 1900	30,649 200	20,977 .....	.....	9,672
Pennsylvania.....	1905 1900	64,234 68,604	19,000 3,405	36,217 49,994	9,017 15,205
Vermont.....	1905 1900	37,218 22,562	28,310 18,764	.....	8,908 3,798
Virginia.....	1905 1900	2,160 1,188	785	1,375 1,188	.....
Wisconsin.....	1905 1900	152,260 73,441	89,101 48,909	3,744	59,415 24,532
All other states.....	1905 1900	15,354 12,972	5,288 6,400	5,600 3,330	4,466 3,242

¹ None reported in 1900.

² None reported in 1905.

³ Included in "all other states" in 1900.

EQUIPMENT AND CAPACITY.

Table 16 shows the number of Fourdrinier and cylinder machines, digestors, and grinders, and the total yearly capacity of mills, for the censuses of 1900 and 1905.

TABLE 16.—Machinery, and capacity of mills: 1905 and 1900.

	1905	1900
Paper machines:		
Total number.....	1,367	1,232
Total width, inches.....	108,953	93,296
Fourdrinier—		
Number.....	752	663
Width, inches.....	67,663	56,436
Cylinder—		
Number.....	617	569
Width, inches.....	41,290	36,860
Digestors, total number for mills making soda or sulphite.....	517	425
Grinders, number for mills making ground wood pulp...	1,362	1,168
Yearly capacity of mills:		
In paper, tons.....	3,857,903	2,782,219
In pulp, tons.....	2,644,753	1,536,431

The total number of paper making machines, both Fourdrinier and cylinder, increased 135, or 11 per cent. The increase for Fourdrinier machines was 89 and for cylinder machines 48. The total width of the machines increased 15,657 inches, or 16.8 per cent, the increase for Fourdrinier machines being 11,227 inches and for cylinder machines 4,430 inches. The number of digestors reported in 1905 shows an increase of 91 over the number reported in 1900, and the number of grinders an increase of 194.

The yearly capacity of the mills producing paper as reported at the census of 1905 increased 1,075,684 tons over 1900, and the yearly capacity of the mills producing pulp and fiber increased 1,108,322 tons.

POWER.

Table 17 shows the power used in the paper and pulp industry, for 1900 and 1905.

TABLE 17.—Power used: 1905 and 1900.

	1905	1900
Number of establishments reporting.....	761	763
Total horsepower.....	1,122,564	764,847
Owned:		
Engines—		
Steam—		
Number.....	2,487	2,016
Horsepower.....	370,852	255,854
Gas and gasoline—		
Number.....	24	13
Horsepower.....	1,916	1,062
Water wheels—		
Number.....	13,150	3,209
Horsepower.....	1,717,989	504,762
Electric motors—		
Number.....	534	91
Horsepower.....	28,856	2,729
Other power, horsepower.....		180
Rented, horsepower.....	2,951	260
Furnished to other establishments, horsepower.....	1,029	3,400

¹ Includes 1 water motor of 10 horsepower.

The total horsepower reported in 1905 shows an increase of 357,717, or 46.8 per cent, over the horsepower reported in 1900. The most important kind of power in the industry has always been waterpower, which formed 64 per cent of the total power reported at the census of 1905, and 66 per cent in 1900. This class of power is used in the coarser and heavier work, principally that of making the pulp. Despite a decrease of 59 in the number of water wheels, the horsepower increased 213,227, or 42.2 per cent. The average horsepower per wheel was 228 in 1905, compared with 157 in 1900; this is a much higher average than is shown for any other kind of power.

Steam furnished 33 per cent of the total power reported in 1905 and 33.5 per cent in 1900. Despite the decrease in proportion, the number of steam engines increased 471, or 23.4 per cent, and the horsepower 114,998, or 44.9 per cent. Electric power is as yet of little importance in the paper and pulp industry; nevertheless it was used in a relatively larger degree as reported at the census of 1905 than in 1900. The

number of motors increased 443, or over fourfold, and the horsepower 26,127, or over ninefold. Power generated by gas and gasoline engines was of little importance at either census.

IMPORTS AND EXPORTS.

Table 18 shows the imports of paper and manufactures of paper, crude paper stock, and wood pulp; and the exports of paper and manufactures of paper, and wood pulp, 1880 to 1905.

TABLE 18.—Imports and exports of paper and wood pulp: 1880 to 1905.¹

YEAR.	PAPER.			WOOD PULP.			
	Imports.		Exports.	Imports. ²		Exports. ³	
	Paper and manufactures of paper (value).	Paper stock, crude (value).	Paper and manufactures of paper (value).	Tons.	Value.	Tons.	Value.
1905...	\$5,623,638	\$3,796,595	\$8,238,088	167,504	\$4,500,955	11,852	\$473,585
1904...	5,319,086	2,900,713	7,543,728	144,796	3,602,668	15,115	593,474
1903...	4,733,036	3,015,084	7,180,014	116,881	3,387,770	11,232	445,228
1902...	4,223,125	2,770,255	7,312,030	67,416	2,059,092	19,174	740,103
1901...	4,002,989	2,183,686	7,438,901	46,757	1,586,402	30,764	1,051,867
1900...	3,795,645	3,261,778	6,215,833	82,441	2,405,630	14,277	458,463
1899...	3,191,589	2,614,914	5,477,884	38,319	671,506	27,966	696,319
1898...	2,838,738	2,870,323	5,494,564	29,846	601,642	25,214	536,670
1897...	3,121,530	3,071,705	3,333,163	41,770	800,886		
1896...	3,169,480	3,445,723	2,713,875	45,143	1,052,829		
1895...	2,863,533	3,786,026	2,185,257	28,440	958,009		
1894...	2,628,351	3,048,094	1,906,634	35,587	1,664,547		
1893...	3,880,981	6,272,298	1,540,886	63,565	2,908,884		
1892...	3,342,304	5,448,263	1,382,251	41,118	1,820,143		
1891...	3,031,454	5,019,533	1,299,169	43,316	1,902,689		
1890...	2,816,860	5,261,448	1,226,686				
1889...	2,542,383	5,925,047	1,191,035				
1888...	2,400,790	5,463,036	1,078,561				
1887...	2,028,235	4,540,598	1,118,538				
1886...	1,838,822	5,194,951	1,106,616				
1885...	1,592,892	5,827,873	972,493				
1884...	1,714,419	5,633,647	929,821				
1883...	1,958,113	5,329,876	1,614,950				
1882...	2,084,289	6,014,183	1,631,370				
1881...	1,841,840	5,245,691	1,408,976				
1880...	1,671,120	7,037,197	1,201,143				

¹ Bureau of Statistics, Department of Commerce and Labor, "Commerce and Navigation of the United States."

² Reported under the head of "manufactures of wood" previous to 1891.

³ Reported under the head of "manufactures of wood" previous to 1898.

The exports of paper and its manufactures in 1905 were greater than the imports by \$2,614,450, or 46.5 per cent. Since 1900 the former have increased \$2,022,255 and the latter \$1,827,993. No crude paper stock is exported; in 1905 the imports of this material had increased by \$534,817 over 1900, and were 40.3 per cent of the total imports of paper and paper stock.

The imports of wood pulp in 1905 had increased 85,063 tons, or 103.2 per cent, in quantity and \$2,095,325, or 87.1 per cent, in value over those of 1900. They formed 19.1 per cent of the total quantity of pulp and fiber reported in 1905 under materials used as shown in Tables 4 and 19, compared with 12.8 per cent in 1900. The exports decreased 2,425 tons, or 17 per cent, in quantity, but increased \$15,122, or 3.3 per cent, in value. The quantity exported was 7.1 per cent of that imported in 1905, as compared with 17.3 per cent in 1900.

PROGRESS OF THE INDUSTRY.

The use of wood pulp and fiber and the perfecting of the Fourdrinier machine have been the principal factors in the development of the manufacture of paper. The production has been stimulated by, and has itself stimulated, the great increase of books, newspapers, and periodicals. A historical sketch of paper making and a description of the modern process of manufacture will be found in the special report on paper and pulp issued by the Bureau of the Census in 1900. Since then there has been little change in the industry.

The principal material for the manufacture of paper in the United States is spruce and poplar pulp, although other materials, such as straw, waste paper, and manila stock enter into the making of the coarser grades. Rags are used for fine paper. There are two kinds of wood pulp—mechanical, made by grinding the wood on a revolving stone, and chemical, made by reducing chipped wood to pulp by chemical processes. Ground, or mechanical, pulp makes brittle paper and other kinds of pulp are therefore generally used with it. The chemical fibers most used are soda and sulphite, so named from the fact that the wood is reduced by cooking in a solution of caustic soda, or of bisulphite of magnesia or of calcium. Soda fiber is soft and has other desirable qualities, but lacking strength is usually mixed with other fiber. Sulphite is both strong and of good quality.

The general management of European and American mills and the methods of preparing the wood are similar. The difference in manufacture lies wholly in the chemical treatment of the wood in the digester. The direct, or quick, cooking method is the one generally used in the American mills, while the indirect cooking, by means of superheated steam, is the method more generally used in the European establishments. In addition to yielding a much stronger fiber, the European method of treatment has the advantage of effecting a considerable saving in raw materials, such as sulphur and lime. Only about one-half the amount of steam used in the direct cooking is necessary in the indirect method. This saving in steam is said to be sufficient to cover all charges for additional investment in the digester plant.

Starting with raw materials, which cost the same, and eliminating the price of labor, it will be found that the modern mill abroad will produce a ton of sulphite pulp at less cost than the average American mill. The lower cost of labor in Europe is always one of the

advantages of the European mill, but the difference in favor of European manufacturers is becoming smaller, as labor saving devices are being introduced into both the European and American mills. The improved method of indirect cooking with superheated steam, as practiced abroad, undoubtedly offers great advantages, and deserves the attention of the American sulphite manufacturers.¹

The recent introduction of wide, high-speed Fourdriniers is a notable feature in the progress of the paper industry. Machines instead of being speeded to run less than 300 feet of paper per minute are now built to make from 500 to 618 feet of news paper per minute. The width has also been gradually increased from less than 100 inches to at least 164 inches. There has been considerable discussion as to the merits of these wide, high-speed machines, the introduction of which was due to the progressiveness of a few manufacturers, who realized that by producing more paper they would have a distinct advantage over their competitors. The cost of operation is said to be much less per ton of production than for the smaller machines. Moreover, the construction of the wide machine has been so perfected that loss by wear has been reduced to a minimum. The question has been raised as to the quality of the paper produced by the high-speed machines, but it is generally thought they can produce as good a quality as the slower machines.²

Great improvements have been made in recent years in the construction and equipment of paper and wood pulp mills; and the American Paper and Pulp Association in 1906 engaged an expert chemist to report at the annual meetings on subjects connected with the chemistry of paper making.³

The necessity of a technical education and training for paper makers has been recognized for many years by manufacturers, and there is a paper making school at Vienna, in Austria, and one at Manchester, in England. German manufacturers have also taken steps to secure one,⁴ but no such school has yet been established in this country.

The detailed statistics for paper and wood pulp are presented in Table 19, which shows separate totals for each state in which there are 3 or more establishments, and groups the statistics for other states, so as to avoid disclosing the operations of individual establishments.

¹ The Paper Mill and Wood Pulp News, February 10, 1906, page 142.

² The Paper Mill and Wood Pulp News, February 10, 1906, page 90, ff.

³ The Paper Mill and Wood Pulp News, February 10, 1906, page 20.

⁴ The Paper Trade Journal, April 7, 1904, page 532.

TABLE 19.—PAPER AND WOOD PULP—DETAILED

	United States.	California.	Connecticut.	Delaware.
1 Number of establishments.....	761	3	50	6
2 Capital, total.....	\$277,444,471	\$1,176,427	\$5,892,684	\$3,176,498
3 Land.....	\$34,234,934	\$47,000	\$712,800	\$244,062
4 Buildings.....	\$62,898,590	\$150,500	\$1,426,959	\$602,500
5 Machinery, tools, and implements.....	\$103,872,408	\$482,500	\$2,013,835	\$1,864,789
6 Cash and sundries.....	\$76,438,539	\$496,427	\$1,739,040	\$465,147
7 Proprietors and firm members.....	309	2	29	6
8 Salaried officials, clerks, etc.:—				
9 Total number.....	3,778	12	154	22
10 Total salaries.....	\$6,097,032	\$20,280	\$236,408	\$69,900
11 Officers of corporations—				
12 Number.....	719	3	36	4
13 Salaries.....	\$2,183,376	\$7,500	\$86,500	\$40,000
14 General superintendents, managers, clerks, etc.—				
15 Total number.....	3,059	9	118	18
16 Total salaries.....	\$3,913,656	\$12,780	\$149,908	\$29,900
17 Men—				
18 Number.....	2,665	8	95	17
19 Salaries.....	\$3,705,951	\$12,360	\$139,011	\$29,600
20 Women—				
21 Number.....	394	1	23	1
22 Salaries.....	\$207,705	\$420	\$10,897	\$300
23 Wage-earners, including pieceworkers, and total wages:				
24 Greatest number employed at any one time during the year.....	75,634	276	1,985	587
25 Least number employed at any one time during the year.....	56,105	241	1,528	508
26 Average number.....	65,964	259	1,750	547
27 Total wages.....	\$32,019,212	\$181,412	\$843,333	\$252,268
28 Men 16 years and over—				
29 Average number.....	56,827	248	1,451	455
30 Wages.....	\$29,462,799	\$177,297	\$761,229	\$233,053
31 Women 16 years and over—				
32 Average number.....	8,882	11	293	92
33 Wages.....	\$2,499,558	\$4,115	\$80,856	\$19,215
34 Children under 16 years—				
35 Average number.....	255	6	6	6
36 Wages.....	\$56,825	—	\$1,248	—
37 Average number of wage-earners, including pieceworkers, employed during each month:				
38 Men 16 years and over—				
39 January.....	54,754	251	1,428	450
40 February.....	54,183	249	1,431	451
41 March.....	55,934	249	1,453	464
42 April.....	56,732	247	1,445	479
43 May.....	58,213	252	1,459	482
44 June.....	57,800	248	1,446	477
45 July.....	57,177	237	1,429	439
46 August.....	57,787	244	1,460	442
47 September.....	58,150	242	1,466	446
48 October.....	58,502	252	1,465	438
49 November.....	57,306	251	1,466	446
50 December.....	55,386	254	1,464	446
51 Women 16 years and over—				
52 January.....	8,812	10	243	94
53 February.....	8,869	10	291	90
54 March.....	8,910	10	298	89
55 April.....	8,908	11	305	91
56 May.....	9,039	11	308	94
57 June.....	9,115	11	310	93
58 July.....	8,713	12	293	93
59 August.....	8,734	12	297	92
60 September.....	8,888	12	307	94
61 October.....	8,951	12	303	93
62 November.....	8,824	11	283	89
63 December.....	8,821	10	278	92
64 Children under 16 years—				
65 January.....	231	—	3	—
66 February.....	232	—	3	—
67 March.....	256	—	5	—
68 April.....	238	—	5	—
69 May.....	252	—	5	—
70 June.....	260	—	6	—
71 July.....	267	—	8	—
72 August.....	250	—	7	—
73 September.....	277	—	8	—
74 October.....	271	—	8	—
75 November.....	263	—	7	—
76 December.....	263	—	7	—
77 Miscellaneous expenses, total.....	\$16,440,041	\$50,748	\$522,352	\$47,839
78 Rent of works.....	\$198,135	\$14,000	\$6,203	—
79 Taxes.....	\$1,383,981	\$4,468	\$27,175	\$3,297
80 Rent of offices, interest, insurance, and all other sundry expenses not hitherto included.....	\$14,739,522	\$32,300	\$487,553	\$44,542
81 Contract work.....	\$118,403	—	\$1,421	—
82 Materials used, total cost.....	\$111,251,478	\$274,369	\$2,738,430	\$1,270,240
83 Wood—				
84 Domestic spruce for ground wood—				
85 Cords.....	881,106	—	—	—
86 Cost.....	\$6,355,563	—	—	—
87 Domestic spruce for sulphite and soda fiber—				
88 Cords.....	851,425	—	—	—
89 Cost.....	\$5,582,289	—	—	—
90 Canadian spruce for ground wood—				
91 Cords.....	245,087	—	—	—
92 Cost.....	\$2,173,612	—	—	—
93 Canadian spruce for sulphite and soda fiber—				
94 Cords.....	293,218	—	—	—
95 Cost.....	\$2,396,405	—	—	—
96 Domestic poplar for soda fiber—				
97 Cords.....	213,058	—	—	22,205
98 Cost.....	\$1,506,971	—	—	\$174,100
99 Canadian poplar for soda fiber—				
100 Cords.....	35,313	—	—	—
101 Cost.....	\$251,600	—	—	—
102 Other domestic pulp wood—				
103 Cords.....	527,505	20,000	—	1,911
104 Cost.....	\$2,508,982	\$80,000	—	\$14,800
105 Other Canadian wood—				
106 Cords.....	4,005	—	—	—
107 Cost.....	\$25,449	—	—	—

SUMMARY, BY STATES: 1905.

Illinois.	Indiana.	Iowa.	Kansas.	Maine.	Maryland.	Massachusetts.	Michigan.	
10	36	4	3	37	16	87	80	1
\$3,992,877	\$6,511,005	\$367,913	\$131,540	\$41,273,915	\$6,350,458	\$41,073,769	\$8,397,576	2
\$421,560	\$644,381	\$41,200	\$6,000	\$4,151,698	\$285,043	\$6,861,916	\$829,022	3
\$1,020,924	\$1,507,803	\$55,000	\$16,250	\$11,239,679	\$1,399,052	\$9,964,190	\$1,938,388	4
\$1,684,817	\$3,215,213	\$153,372	\$76,182	\$14,735,975	\$3,346,278	\$11,573,811	\$3,558,349	5
\$865,576	\$1,143,608	\$118,341	\$33,108	\$11,146,563	\$1,320,085	\$12,673,852	\$2,071,817	6
4	5		5	11	19	33	6	7
73	112	13	8	350	47	627	163	8
\$120,069	\$131,538	\$11,936	\$7,940	\$604,774	\$76,068	\$1,184,610	\$218,369	9
15	24	4		41	4	103	43	10
\$32,558	\$38,152	\$3,672		\$193,488	\$12,600	\$415,820	\$97,802	11
58	88	9	8	309	43	524	120	12
\$87,511	\$93,386	\$8,264	\$7,940	\$411,286	\$63,468	\$768,790	\$120,567	13
51	69	7	5	291	39	425	109	14
\$84,019	\$84,443	\$7,796	\$7,080	\$400,965	\$61,675	\$713,062	\$114,946	15
7	19	2	2	18	4	99	11	16
\$3,492	\$8,943	\$468	\$860	\$10,321	\$1,793	\$55,728	\$5,621	17
1,200	2,089	182	108	8,887	1,133	12,646	3,452	18
836	1,222	114	114	5,605	806	9,666	2,794	19
959	1,620	152	91	7,574	1,008	11,705	3,052	20
\$462,453	\$664,151	\$66,114	\$45,947	\$4,052,919	\$397,181	\$5,587,862	\$1,306,112	21
916	1,512	131	82	7,253	889	7,577	2,504	22
\$451,388	\$637,511	\$61,603	\$43,460	\$3,966,200	\$369,183	\$4,326,853	\$1,163,325	23
43	100	20	3	317	100	4,067	544	24
\$11,065	\$25,677	\$4,223	\$900	\$85,703	\$25,351	\$1,243,050	\$141,794	25
	8	1	6	4	19	71	4	26
	\$963	\$288	\$1,587	\$1,016	\$2,647	\$17,959	\$993	27
835	1,441	110	55	6,695	871	7,591	2,475	28
824	1,430	110	85	6,396	828	7,598	2,515	29
923	1,387	143	76	6,913	898	7,716	2,522	30
841	1,372	148	85	7,208	914	7,661	2,625	31
854	1,609	141	89	7,466	905	7,587	2,654	32
910	1,492	140	68	7,528	907	7,543	2,678	33
843	1,335	113	97	7,543	896	7,381	2,392	34
861	1,326	99	89	7,648	904	7,411	2,439	35
846	1,488	141	85	7,645	906	7,573	2,434	36
1,016	1,572	141	76	7,643	939	7,673	2,461	37
1,006	1,531	144	73	7,569	885	7,628	2,427	38
930	1,361	142	75	6,782	815	7,562	2,426	39
89	118	18	3	317	87	4,129	590	40
41	115	19	3	316	86	4,106	588	41
42	114	16	3	325	91	4,098	583	42
38	93	18	3	333	97	4,084	575	43
45	98	22	3	340	94	4,096	574	44
48	112	30	3	329	94	4,122	579	45
44	98	26	3	318	102	3,893	496	46
44	97	15	3	315	110	3,858	523	47
43	90	16	3	321	114	4,039	516	48
46	79	21	3	309	118	4,096	517	49
46	91	22	3	285	116	4,080	499	50
40	92	17	3	296	91	4,083	488	51
	8		0		21	60	4	52
	8		6		21	58	4	53
	8	1	6		21	62	5	54
	8	1	6	2	21	64	5	55
	8	1	6	6	21	72	4	56
	8	1	6	7	21	75	7	57
	8	2	6	6	22	76	3	58
	8	2	6	6	22	71	3	59
	8	2	6	7	22	76	3	60
	8	1	6	6	12	81	3	61
	8	1	6	6	12	78	3	62
	8	1	6	2	12	79	4	63
	8	1	6					64
\$166,645	\$280,397	\$11,484	\$18,372	\$2,257,950	\$184,007	\$2,960,680	\$498,032	65
\$4,380	\$2,281		\$1,500	\$29,882	\$350	\$1	\$250	66
\$12,003	\$27,460	\$982	\$780	\$190,954	\$12,192	\$321,598	\$70,228	67
\$150,262	\$250,656	\$10,502	\$16,092	\$2,031,644	\$171,465	\$2,620,081	\$427,554	68
				\$5,470		\$19,000		69
\$1,415,845	\$2,517,028	\$130,647	\$78,330	\$13,868,147	\$2,453,318	\$17,946,726	\$4,581,471	70
6,500	1,000			266,600		3,000	9,318	71
\$40,350	\$9,568			\$1,925,318		\$15,507	\$41,652	72
				267,781		21,536	1,861	73
				\$1,928,062		\$130,631	\$9,793	74
				16,118		11,914	310	75
	\$11,778			\$151,181		\$108,301	\$2,486	76
				11,636		6,589	13,774	77
				\$90,310		\$57,236	\$93,520	78
				104,964	31,938	3,248		79
				\$685,059	\$267,670	\$22,465		80
				5,612				81
				\$54,392				82
				846	3,890	711	53,923	83
	\$5,091			\$4,053	\$23,414	\$3,904	\$320,381	84
							3,200	85
	142						\$18,916	86
	\$1,846							87

TABLE 19.—PAPER AND WOOD PULP—DETAILED

		United States.	California.	Connecticut.	Delaware.
	Materials used—Continued.				
86	Rags, including cotton and flax waste and sweepings—				
87	Tons.....	294,552	620	8,297	4,280
	Cost.....	\$8,864,607	\$4,960	\$292,665	\$109,139
88	Old or waste paper—				
89	Tons.....	588,543	3,942	77,698	447
	Cost.....	\$7,430,335	\$31,471	\$891,915	\$15,012
90	Manila stock, including jute bagging, rope, waste, threads, etc.—				
91	Tons.....	107,029	270	6,041	6
	Cost.....	\$2,502,332	\$4,120	\$132,584	\$85
92	Straw—				
93	Tons.....	304,585	2,586		
	Cost.....	\$1,502,886	\$11,637		
94	Ground wood pulp, purchased—				
95	Tons.....	317,286		2,694	
	Cost.....	\$5,754,259		\$54,388	
96	Soda wood fiber, purchased—				
97	Tons.....	120,978		1,405	9,253
	Cost.....	\$5,047,105		\$62,652	\$395,217
98	Sulphite wood fiber, purchased—				
99	Tons.....	433,160	60	6,582	4,005
	Cost.....	\$16,567,122	\$640	\$265,727	\$158,435
100	Other chemical fiber, purchased—				
101	Tons.....	6,278		229	
	Cost.....	\$264,678		\$11,515	
102	Other stock.....	\$1,963,066	\$5,316	\$220,049	
103	Sulphur—				
104	Tons.....	130,400	750		
	Cost.....	\$3,221,834	\$15,000		
105	Other chemicals.....	\$5,111,546	\$10,856	\$135,877	\$118,833
106	Pyrites—				
107	Tons.....	2,036		226	
	Cost.....	\$31,925		\$4,529	
108	Sizing—				
109	Tons.....	52,171	242	933	210
	Cost.....	\$1,838,035	\$7,176	\$28,259	\$5,640
110	Clay—				
111	Tons.....	201,218	1,726	2,423	4,066
	Cost.....	\$2,096,570	\$25,893	\$19,175	\$43,596
112	Fuel.....	\$13,178,567	\$33,957	\$355,500	\$132,864
113	Rent of power and heat.....	\$70,169	\$26,500		
114	Mill supplies.....	\$2,526,950	\$5,702	\$55,696	\$6,134
115	All other materials.....	\$11,034,537	\$11,141	\$116,913	\$93,285
116	Freight.....	\$1,444,064		\$90,986	\$3,100
117	Products, total value.....	\$188,715,189	\$640,027	\$5,039,147	\$1,904,556
	News paper—				
118	In rolls for printing—				
119	Tons.....	840,802			
	Value.....	\$32,763,308			
120	In sheets for printing—				
121	Tons.....	72,020			
	Value.....	\$3,143,152			
	Book paper—				
	Book—				
122	Wood fiber, chief ingredient—				
123	Tons.....	354,540		745	1,342
	Value.....	\$24,840,224		\$63,000	\$99,599
124	Rags, chief ingredient—				
125	Tons.....	79,960		600	5,990
	Value.....	\$6,316,504		\$60,000	\$428,744
126	Cover—				
127	Tons.....	22,150		2,895	7,732
	Value.....	\$2,023,986		\$350,162	\$578,688
128	Plate, lithograph, map, woodcut, etc.—				
129	Tons.....	19,837		185	2,191
	Value.....	\$1,458,343		\$44,400	\$167,460
130	Cardboard, bristol board, card middles, tickets, etc.—				
131	Tons.....	39,060		1,584	
	Value.....	\$2,764,444		\$68,317	
	Fine paper—				
132	Writing paper—				
133	Tons.....	131,934		3,430	
	Value.....	\$19,321,045		\$471,269	
134	All other—				
135	Tons.....	14,898		3,009	590
	Value.....	\$2,928,125		\$392,786	\$53,950
	Wrapping paper—				
136	Manila (rope, jute, tag, etc.)—				
137	Tons.....	86,826		5,428	19
	Value.....	\$6,136,080		\$441,239	\$700
138	Heavy (mill wrappers, etc.)—				
139	Tons.....	96,992		425	
	Value.....	\$4,035,588		\$19,000	
140	Straw—				
141	Tons.....	54,232			
	Value.....	\$1,389,348			
142	Bogus, or wood, manila (all grades)—				
143	Tons.....	228,371	6,280	970	
	Value.....	\$10,099,772	\$335,100	\$31,500	
144	All other—				
145	Tons.....	177,870	1,048	233	
	Value.....	\$8,774,804	\$40,840	\$10,805	
	Boards				
146	Wood pulp—				
147	Tons.....	60,883		16,569	
	Value.....	\$2,347,250		\$554,140	
148	Straw—				
149	Tons.....	167,278	1,724	10,189	
	Value.....	\$4,367,560	\$64,616	\$292,716	
150	News				
151	Tons.....	38,560	1,783	1,765	
	Value.....	\$1,174,216	\$78,971	\$63,875	
152	All other—				
153	Tons.....	253,950		36,087	
	Value.....	\$9,070,531		\$1,443,322	
	Other paper products—				
154	Tissue paper—				
155	Tons.....	43,925	1,000	2,169	
	Value.....	\$5,056,438	\$80,000	\$406,675	

PAPER AND WOOD PULP.

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SUMMARY, BY STATES: 1905—Continued.

Illinois.	Indiana.	Iowa.	Kansas.	Maine.	Maryland.	Massachusetts.	Michigan.	
3,023	102	3,119	300	5,766	2,887	99,468	8,192	86
\$36,835	\$1,487	\$31,195	\$2,400	\$166,378	\$40,378	\$4,837,815	\$199,937	87
35,496	30,257	1,395	750	5,666	9,448	60,424	60,417	88
\$363,754	\$363,835	\$11,167	\$5,000	\$92,745	\$90,351	\$1,009,927	\$1,058,014	89
515	4,948			93	5	14,339	1,900	90
\$7,365	\$93,378			\$1,859	\$67	\$437,761	\$28,000	91
61,936	119,981	10,715	9,797		2,851	1,800	6,984	92
\$300,535	\$620,019	\$46,191	\$41,624		\$12,592	\$11,700	\$32,577	93
2,170	13,831			60,132	2,838	14,980	9,712	94
\$40,033	\$279,081			\$937,741	\$56,219	\$302,997	\$191,713	95
	700			12,813	12,112	39,991	10,769	96
	\$30,800			\$532,544	\$486,164	\$1,712,642	\$439,688	97
3,298	6,319			34,020	13,020	63,313	15,197	98
\$138,188	\$247,885			\$1,252,781	\$543,184	\$2,908,553	\$630,761	99
				303		2,653	201	100
				\$11,936		\$124,179	\$7,036	101
\$24,187	\$111,831			\$79,136	\$7,452	\$215,964	\$26,733	102
3	20			31,903		4,151	5,124	103
\$82	\$383			\$737,286		\$97,805	\$126,326	104
\$54,594	\$84,819	\$3,676	\$5,530	\$817,223	\$180,388	\$558,045	\$168,786	105
	354					35	300	106
	\$3,804					\$366	\$6,000	107
	988	5		6,510	1,480	9,499	1,596	108
\$1,237	\$19,990	\$100		\$224,102	\$31,550	\$551,865	\$49,596	109
	928			27,295	7,907	30,730	10,318	110
	\$8,071			\$292,460	\$83,033	\$372,208	\$89,532	111
\$261,635	\$394,894	\$33,394	\$15,041	\$1,887,935	\$268,916	\$1,815,681	\$617,974	112
				\$6,225			\$1,250	113
\$38,572	\$50,516	\$2,244	\$5,992	\$359,767	\$18,858	\$325,751	\$155,583	114
\$90,878	\$174,736	\$2,010	\$2,743	\$1,523,899	\$319,949	\$2,047,581	\$201,868	115
\$17,600	\$3,216	\$670		\$105,755	\$23,133	\$277,842	\$63,349	116
\$2,442,504	\$3,916,998	\$252,832	\$202,290	\$22,951,124	\$3,296,348	\$32,012,247	\$7,340,631	117
2,370	1,315			213,476		19,659	4,000	118
\$100,362	\$58,764			\$7,635,428		\$904,769	\$165,000	119
	6,000			1,831			4,167	120
\$27,746	\$258,000			\$86,436			\$172,747	121
	1,807			66,797	27,776	72,007	16,935	122
	\$119,424			\$5,112,739	\$1,913,163	\$5,514,986	\$1,167,316	123
					1,051	21,432	31,807	124
					\$73,590	\$2,000,059	\$2,225,543	125
						2,448	537	126
						\$248,820	\$38,500	127
				600		4,117	2,769	128
				\$46,500		\$315,855	\$197,608	129
						23,504	260	130
						\$1,811,431	\$18,216	131
				4,400		76,503	2,190	132
				\$385,000		\$13,484,650	\$215,971	133
						4,272	457	134
						\$1,486,761	\$40,091	135
	1,236			8,419		7,517	8,885	136
	\$98,896			\$489,350	\$158	\$942,813	\$486,597	137
	6,294			11,768	175	3,074	2,131	138
4,179	\$218,610			\$496,178	\$4,900	\$124,026	\$75,260	139
12,207	12,025	3,958	1,800		150		1,262	140
\$233,573	\$256,300	\$87,746	\$35,000		\$4,500		\$31,130	141
	7,079			66,631	755	671	2,050	142
	\$265,467			\$2,935,969	\$19,630	\$33,674	\$91,219	143
	1,510	1,014	1,200	3,000		4,888	18,326	144
	\$35,190	\$28,416	\$30,000	\$154,000		\$317,402	\$881,655	145
				10,178		2,656	11,500	146
200	3,322			\$347,159		\$209,867	\$370,070	147
\$6,000	\$110,483							
22,408	59,114	3,000	6,082		1,884	10,680	2,776	148
\$566,051	\$1,469,355	\$77,350	\$137,290		\$49,953	\$319,401	\$69,423	149
3,566	841				1,385	1,567		150
\$89,747	\$25,222				\$35,354	\$43,900		151
27,416	20,137			3,299	905	12,117	12,106	152
\$860,617	\$612,056			\$176,409	\$26,900	\$765,178	\$373,288	153
	740					2,430		154
	\$90,264					\$419,650		155

TABLE 19.—PAPER AND WOOD PULP—DETAILED

	United States.	California.	Connecticut.	Delaware.
Products—Continued.				
Other paper products—Continued.				
156 Blotting paper—				
157 Tons.....	8,702		750	
Value.....	\$1,046,790		\$111,107	
158 Building, roofing, asbestos, and sheathing papers—				
159 Tons.....	145,024	920	1,481	
Value.....	\$4,845,628	\$40,500	\$43,976	
160 Hanging papers—				
161 Tons.....	62,606			
Value.....	\$3,013,464			
162 Miscellaneous—				
163 Tons.....	106,296		1,135	212
Value.....	\$6,729,820		\$134,042	\$25,355
164 Ground wood pulp—				
Made for own use, tons.....	695,576	3,000		
Made to sell as such—				
165 Tons.....	273,400			
166 Value.....	\$4,323,495			
167 Soda fiber—				
Made for own use, tons.....	66,404			
Made to sell as such—				
168 Tons.....	130,366			13,206
169 Value.....	\$5,159,615			\$550,000
170 Sulphite fiber—				
Made for own use, tons.....	379,082	4,500		
Made to sell as such—				
171 Tons.....	376,940			
172 Value.....	\$13,661,464			
173 All other products.....	\$1,924,195		\$36,816	
Equipment and capacity:				
Paper machines—				
Fourdrinier—				
174 Number.....	752	2	17	10
175 Total width, inches.....	67,603	224	1,198	845
176 Capacity per twenty-four hours, tons.....	8,569	25	45	70
Cylinder—				
177 Number.....	617	4	64	1
178 Total width, inches.....	41,280	210	3,733	86
179 Capacity per twenty-four hours, tons.....	4,740	23	343	30
Digestors, for mills making soda—				
180 Number.....	208		3	7
181 Total capacity, tons per cook.....	222		16	2
Digestors, for mills making sulphite—				
182 Number.....	309	3		
183 Total capacity, tons per cook.....	896	12		
Grinders, for mills making ground wood pulp—				
184 Number.....	1,362	4		
185 Total capacity, per twenty-four hours, tons.....	5,070	16		
Yearly capacity of mills:				
186 In paper, tons.....	3,857,903	14,810	110,121	20,550
187 In pulp, tons.....	1,515,088	3,500		15,500
188 In soda pulp, tons.....	244,573			
189 In sulphite pulp, tons.....	885,092	7,000		
Power:				
190 Number of establishments reporting.....	761	3	50	6
191 Total horsepower.....	1,122,564	3,808	18,056	5,115
Owned—				
Engines—				
192 Steam—				
193 Number.....	2,487	6	103	27
Horsepower.....	370,852	330	8,704	4,430
Gas and gasoline—				
194 Number.....	24			
195 Horsepower.....	1,916			
Water wheels—				
196 Number.....	13,150	7	89	10
197 Horsepower.....	1717,989	3,000	9,317	685
Electric motors—				
198 Number.....	534		2	
199 Horsepower.....	28,856		35	
Rented—				
Electric motors—				
200 Number.....	40	19		
201 Horsepower.....	2,748	478		
202 Other kind, horsepower.....	203			
203 Furnished to other establishments, horsepower.....	1,029		60	

¹Includes 1 water motor of 10 horsepower.

SUMMARY, BY STATES: 1905 -Continued.

Illinois.	Indiana.	Iowa.	Kansas.	Maine.	Maryland.	Massachusetts.	Michigan.	
						1,297		156
						\$168,575		157
7,954		2,996			2,524	7,153	3,303	158
\$177,987		\$59,320			\$84,161	\$917,682	\$100,604	159
	2,000				4,152	3,046		160
	\$80,000				\$189,613	\$182,433		161
6,956	21,482			2,523	359	15,186	2,876	162
\$113,213	\$212,607			\$104,596	\$8,999	\$1,325,438	\$154,486	163
4,290	2,527			165,860		14,007	12,064	164
2,210	160			64,480			2,015	165
\$44,200	\$3,360			\$922,206			\$64,469	166
				7,881		2,000		167
				45,376				168
				\$1,773,809	22,658			169
					\$885,527			
				115,063		3,700	15,390	170
				58,261		8,738	9,143	171
\$38,804	\$3,000			\$2,192,704		\$415,975	\$342,817	172
				\$92,651		\$58,902	\$58,621	173
1	8			73	12	157	34	174
120	755			7,382	1,150	12,426	3,473	175
25	93			1,349	120	862	444	176
20	39	7	3	18	9	44	21	177
2,229	2,956	406	228	1,038	508	3,054	1,258	178
396	580	34	33	126	42	264	185	179
	28			38	10	2		180
	35			38	11	3		181
				55		15	24	182
				131		23	74	183
8	9			268		18	20	184
10	24			1,015		60	72	185
125,175	184,761	10,730	10,600	425,848	49,275	331,680	181,108	186
12,000	19,440			305,982		16,110	25,810	187
				91,028	24,550	2,000		188
				174,387		13,000	20,600	189
19	36	4	3	37	16	87	30	190
12,923	20,045	1,005	1,075	164,071	10,271	107,020	31,420	191
64	109	9	10	184	37	362	104	192
7,820	17,733	1,005	1,058	34,976	6,076	53,111	18,692	193
1	7		1				1	194
7	534		20				10	195
35	25			446	16	324	94	196
4,991	1,508			116,508	1,267	51,843	12,655	197
8	11			76	30	69	0	198
105	270			11,777	2,928	2,060	63	199
				6				200
				810				201
								202
				90		322		203
	100							

TABLE 19.—PAPER AND WOOD PULP—DETAILED

	Minnesota.	New Hampshire.	New Jersey.	New York.
1 Number of establishments.....	4	25	38	177
2 Capital, total.....	\$1,490,902	\$14,041,014	\$7,122,852	\$56,461,739
3 Land.....	\$70,724	\$1,742,780	\$1,392,950	\$8,394,107
4 Buildings.....	\$233,500	\$2,477,076	\$1,634,538	\$13,098,782
5 Machinery, tools, and implements.....	\$844,650	\$4,620,928	\$2,638,610	\$19,383,032
6 Cash and sundries.....	\$342,028	\$5,200,230	\$1,456,754	\$15,585,818
7 Proprietors and firm members.....		5	15	85
8 Salaried officials, clerks, etc.:—				
9 Total number.....	22	147	129	759
10 Total salaries.....	\$31,450	\$208,930	\$232,958	\$1,131,729
11 Officers of corporations—				
12 Number.....	8	21	32	155
13 Salaries.....	\$15,500	\$58,650	\$117,325	\$403,072
14 General superintendents, managers, clerks, etc.—				
15 Total number.....	14	126	97	604
16 Total salaries.....	\$15,950	\$150,280	\$115,633	\$728,657
17 Men—				
18 Number.....	13	113	77	540
19 Salaries.....	\$15,530	\$143,210	\$104,308	\$695,364
20 Women—				
21 Number.....	1	13	20	64
22 Salaries.....	\$420	\$7,070	\$11,325	\$33,293
23 Wage-earners, including pieceworkers, and total wages:				
24 Greatest number employed at any one time during the year.....	431	3,507	1,836	14,576
25 Least number employed at any one time during the year.....	344	2,111	1,496	10,892
26 Average number.....	396	2,522	1,629	12,418
27 Total wages.....	\$234,378	\$1,315,310	\$786,731	\$6,402,323
28 Men 16 years and over—				
29 Average number.....	380	2,411	1,452	11,890
30 Wages.....	\$229,920	\$1,284,035	\$740,156	\$6,252,932
31 Women 16 years and over—				
32 Average number.....	16	111	142	514
33 Wages.....	\$4,458	\$31,275	\$38,255	\$147,432
34 Children under 16 years—				
35 Average number.....			35	14
36 Wages.....			\$8,320	\$1,959
37 Average number of wage-earners, including pieceworkers, employed during each month:				
38 Men 16 years and over—				
39 January.....	369	2,392	1,453	11,065
40 February.....	365	2,248	1,465	10,990
41 March.....	346	2,376	1,487	11,296
42 April.....	392	2,535	1,453	11,604
43 May.....	396	2,545	1,430	12,324
44 June.....	392	2,437	1,388	12,485
45 July.....	388	2,405	1,413	12,277
46 August.....	392	2,367	1,420	12,260
47 September.....	391	2,449	1,458	12,477
48 October.....	397	2,447	1,499	12,566
49 November.....	385	2,321	1,489	11,998
50 December.....	347	2,410	1,469	11,338
51 Women 16 years and over—				
52 January.....	15	111	137	457
53 February.....	16	115	136	462
54 March.....	15	108	128	479
55 April.....	17	106	144	485
56 May.....	12	107	146	548
57 June.....	16	110	148	554
58 July.....	17	106	148	549
59 August.....	17	93	148	552
60 September.....	17	117	143	549
61 October.....	17	117	144	542
62 November.....	17	122	143	494
63 December.....	16	120	139	497
64 Children under 16 years—				
65 January.....			35	9
66 February.....			35	13
67 March.....			36	24
68 April.....			31	12
69 May.....			31	14
70 June.....			30	13
71 July.....			30	12
72 August.....			35	12
73 September.....			38	15
74 October.....			39	16
75 November.....			40	14
76 December.....			40	14
77 Miscellaneous expenses, total.....	\$80,884	\$650,683	\$286,681	\$2,848,610
78 Rent of works.....	\$2,000	\$1,400	\$9,250	\$78,753
79 Taxes.....	\$5,490	\$60,521	\$23,505	\$241,462
80 Rent of offices, interest, insurance, and all other sundry expenses not hitherto included.....	\$53,394	\$583,052	\$253,926	\$2,478,802
81 Contract work.....		\$5,710		\$49,593
82 Materials used, total cost.....	\$676,549	\$5,327,734	\$3,022,484	\$22,805,751
83 Wood—				
84 Domestic spruce for ground wood—				
85 Cords.....	26,531	70,719		274,920
Cost.....	\$180,556	\$440,578		\$2,004,195
86 Domestic spruce for sulphite and soda fiber—				
87 Cords.....	1,650	117,973	9,175	210,338
88 Cost.....	\$13,171	\$768,233	\$75,663	\$1,329,151
89 Canadian spruce for ground wood—				
90 Cords.....		2,421		181,041
91 Cost.....		\$17,937		\$1,610,472
92 Canadian spruce for sulphite and soda fiber—				
93 Cords.....		99,402	8,981	139,243
94 Cost.....		\$784,615	\$85,319	\$1,176,214
95 Domestic poplar for soda fiber—				
96 Cords.....				18,537
97 Cost.....				\$124,371
98 Canadian poplar for soda fiber—				
99 Cords.....				21,892
100 Cost.....				\$149,544
101 Other domestic pulp wood—				
102 Cords.....				17,580
103 Cost.....				\$131,372
104 Other Canadian wood—				
105 Cords.....				663
106 Cost.....				\$4,687

1 Includes establishments distributed as follows: Colorado, 1; District of Columbia, 1; Georgia, 1; Missouri, 1; South Carolina, 1; Texas 1; Washington, 2.

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Ohio.	Oregon.	Pennsylvania.	Vermont.	Virginia.	West Virginia.	Wisconsin.	All other states. ¹	
53	4	65	28	0	7	52	8	1
\$14,433,114	\$2,967,630	\$21,468,927	\$5,628,676	\$5,517,200	\$2,215,436	\$24,408,918	\$3,343,401	2
\$1,370,958	\$260,273	\$1,540,018	\$1,172,998	\$257,798	\$315,099	\$3,210,377	\$262,170	3
\$2,846,642	\$477,000	\$4,086,289	\$1,456,435	\$960,247	\$362,460	\$5,352,266	\$502,110	4
\$6,187,292	\$1,361,311	\$9,546,496	\$2,020,826	\$2,757,771	\$1,081,268	\$9,330,526	\$1,394,527	5
\$4,028,222	\$869,046	\$6,296,124	\$978,417	\$1,541,384	\$456,609	\$6,515,749	\$1,094,594	6
		53	20		3	2	2	7
222	45	324	99	65	37	287	61	8
\$327,394	\$132,366	\$517,955	\$123,103	\$133,585	\$47,018	\$435,474	\$93,178	9
57	10	53	22	12	8	58	0	10
\$132,037	\$87,896	\$191,576	\$44,400	\$47,700	\$14,520	\$131,108	\$11,500	11
165	35	271	77	53	29	229	55	12
\$195,357	\$44,470	\$326,379	\$78,703	\$85,885	\$32,498	\$304,366	\$81,678	13
137	34	236	63	50	26	209	50	14
\$183,078	\$43,990	\$307,382	\$72,069	\$84,313	\$31,346	\$291,182	\$79,222	15
28	1	35	14	3	0	20	5	16
\$12,279	\$490	\$18,997	\$6,634	\$1,572	\$1,152	\$13,184	\$2,456	17
4,269	755	6,451	1,502	1,090	644	7,183	845	18
3,441	552	5,338	864	943	462	5,724	552	19
3,883	653	5,906	1,280	993	545	6,338	684	20
\$1,682,830	\$318,113	\$2,839,487	\$616,735	\$363,010	\$229,972	\$2,987,777	\$382,794	21
3,218	646	5,132	1,204	894	526	5,446	610	22
\$1,511,583	\$316,316	\$2,645,529	\$595,774	\$343,359	\$225,538	\$2,759,866	\$366,689	23
655		733	73	99	19	864	66	24
\$171,247		\$186,657	\$20,177	\$19,651	\$4,434	\$220,000	\$14,053	25
	7	41	3			28	8	26
	\$1,797	\$7,301	\$784			\$7,911	\$2,052	27
3,142	658	5,042	1,186	863	481	5,166	701	28
3,218	675	4,948	1,117	869	500	5,177	694	29
3,255	648	4,974	1,201	868	515	5,310	714	30
3,300	659	5,017	1,209	888	513	5,321	616	31
3,283	682	5,127	1,242	904	550	5,525	607	32
3,140	655	5,173	1,227	890	542	5,454	580	33
3,260	654	5,216	1,053	900	569	5,475	502	34
3,259	627	5,265	1,183	906	556	5,761	5-8	35
3,272	690	5,231	1,227	917	551	5,695	520	36
3,288	557	5,208	1,322	906	534	5,515	587	37
3,114	553	5,242	1,258	908	503	5,530	579	38
3,085	694	5,141	1,223	909	498	5,423	592	39
635		728	74	104	18	827	58	40
648		738	74	99	18	834	61	41
680		747	73	95	19	834	63	42
680		731	73	98	19	839	68	43
690		731	72	98	20	859	71	44
699		723	74	95	20	877	68	45
695		700	76	97	19	863	65	46
677		724	78	98	19	894	68	4

TABLE 19.—PAPER AND WOOD PULP—DETAILED

		Minnesota.	New Hampshire.	New Jersey.	New York.
	Materials used—Continued.				
86	Rags, including cotton and flax waste and sweepings—				
87	Tons.....	3,650	4,105	20,898	21,056
	Cost.....	\$46,987	\$89,687	\$393,009	\$335,503
88	Old or waste paper—				
89	Tons.....	122	4,501	47,613	101,472
	Cost.....	\$796	\$71,603	\$506,191	\$1,167,592
90	Manila stock, including jute bagging, rope, waste, threads, etc.—				
91	Tons.....		2,534	24,161	23,119
	Cost.....		\$53,068	\$384,215	\$554,335
92	Straw—				
93	Tons.....				6,211
	Cost.....				\$57,692
94	Ground wood pulp, purchased—				
95	Tons.....	1,578	19,587	1,161	111,082
	Cost.....	\$32,814	\$343,482	\$17,824	\$1,942,151
96	Soda wood fiber, purchased—				
97	Tons.....		3,136	172	7,058
	Cost.....		\$133,944	\$3,600	\$258,630
98	Sulphite wood fiber, purchased—				
99	Tons.....	2,034	7,437	10,417	145,974
	Cost.....	\$93,267	\$260,444	\$372,262	\$4,801,063
100	Other chemical fiber, purchased—				
101	Tons.....		196		748
102	Cost.....		\$9,330		\$10,237
103	Other stock.....	\$846	\$149,802	\$225,314	\$154,013
104	Sulphur—				
105	Tons.....		18,878	1,761	28,506
	Cost.....		\$623,767	\$38,121	\$653,178
106	Other chemicals.....	\$3,892	\$137,861	\$105,571	\$775,942
107	Pyrites—				
108	Tons.....		371		
109	Cost.....		\$2,226		
110	Sizing—				
111	Tons.....	3,256	1,424	3,953	6,540
112	Cost.....	\$81,401	\$33,500	\$82,210	\$151,913
113	Clay—				
114	Tons.....	2,200	7,247	3,348	40,313
115	Cost.....	\$27,355	\$68,833	\$29,233	\$335,487
116	Fuel.....	\$65,896	\$653,702	\$344,530	\$2,259,360
117	Rent of power and heat.....		\$1,100	\$50	\$33,925
118	Mill supplies.....	\$46,568	\$56,159	\$91,430	\$391,145
119	All other materials.....	\$83,000	\$594,952	\$192,870	\$2,123,321
120	Freight.....		\$32,911	\$75,132	\$270,258
121	Products, total value.....	\$1,145,818	\$8,930,291	\$5,043,462	\$37,750,605
122	News paper—				
123	In rolls for printing—				
124	Tons.....	18,230	79,332		330,423
125	Value.....	\$655,180	\$3,116,188		\$12,719,853
126	In sheets for printing—				
127	Tons.....	7,149	1,190		17,123
128	Value.....	\$266,241	\$60,003		\$745,240
129	Book paper—				
130	Book—				
131	Wood fiber, chief ingredient—				
132	Tons.....		11,212	4,720	25,792
133	Value.....		\$738,199	\$330,417	\$1,667,708
134	Rags, chief ingredient—				
135	Tons.....		827		3,300
136	Value.....		\$76,480		\$264,639
137	Cover—				
138	Tons.....				4,325
139	Value.....				\$438,909
140	Plate, lithograph, map, woodcut, etc.—				
141	Tons.....				150
142	Value.....				\$10,080
143	Cardboard, bristol board, card middles, tickets, etc.—				
144	Tons.....				10,948
145	Value.....				\$432,935
146	Fine paper—				
147	Writing paper—				
148	Tons.....				55
149	Value.....				\$6,604
150	All other—				
151	Tons.....		414		
152	Value.....		\$18,677		
153	Wrapping paper—				
154	Manila (rope, jute, tag, etc.)—				
155	Tons.....			7,279	20,888
	Value.....			\$704,765	\$980,273
156	Heavy (mill wrappers, etc.)—				
157	Tons.....		494	2,000	12,741
158	Value.....		\$17,230	\$191,531	\$466,846
159	Straw—				
160	Tons.....				4,369
161	Value.....				\$155,970
162	Bogus, or wood, manila (all grades)—				
163	Tons.....		26,647	650	75,262
164	Value.....		\$1,166,898	\$15,511	\$3,359,980
165	All other—				
166	Tons.....			8,791	43,926
167	Value.....			\$559,906	\$2,217,924
168	Boards—				
169	Wood pulp—				
170	Tons.....				11,011
171	Value.....				\$508,000
172	Straw—				
173	Tons.....			7,000	7,111
174	Value.....			\$175,000	\$249,027
175	News—				
176	Tons.....			15,870	7,230
177	Value.....			\$461,794	\$255,843
178	All other—				
179	Tons.....		8,268	14,822	64,742
180	Value.....		\$350,277	\$537,554	\$2,334,447
181	Other paper products—				
182	Tissue paper—				
183	Tons.....		2,508	6,162	18,101
184	Value.....		\$292,605	\$953,022	\$1,764,911

SUMMARY, BY STATES: 1905—Continued.

Ohio.	Oregon.	Pennsylvania.	Vermont.	Virginia.	West Virginia.	Wisconsin.	All other states.	
22,877		56,207	1,000	3,443		24,615	647	85
\$556,545		\$866,616	\$47,273	\$95,060		\$602,331	\$17,807	87
55,475	300	63,726	5,148	1,699	5,941	8,412	6,194	88
\$606,328	\$1,800	\$719,374	\$118,387	\$20,193	\$51,194	\$169,626	\$63,960	89
12,268	300	11,971	1,394		2,270	725	170	90
\$354,112	\$3,000	\$299,469	\$29,509		\$102,045	\$14,085	\$3,275	91
71,936	3,700	4,147				1,426	515	92
\$327,355	\$12,025	\$22,907				\$4,232	\$1,800	93
2,782	1,016	6,747	11,426	1,821		43,814	9,915	94
\$57,829	\$22,413	\$125,463	\$212,240	\$42,200		\$876,180	\$219,491	95
9,631		4,451	84	3,938		5,154	311	96
\$400,933		\$189,892	\$3,583	\$164,795		\$218,608	\$13,413	97
27,344		19,747	11,220	1,023	100	57,996	4,054	98
\$1,109,844		\$866,156	\$402,740	\$41,056	\$2,448	\$2,274,908	\$196,800	99
283		843	238			515	69	100
\$16,913		\$44,555	\$10,281			\$15,459	\$3,237	101
\$130,219		\$74,687	\$198,043	\$26,086	\$14,163	\$295,936	\$3,289	102
1,576	1,027	8,170	1,360	3,771	3,645	18,361	794	103
\$38,734	\$33,710	\$171,628	\$30,424	\$93,906	\$85,102	\$458,948	\$17,434	104
\$273,781	\$36,374	\$909,631	\$60,982	\$181,802	\$72,527	\$327,689	\$86,867	105
750								106
\$15,000								107
3,695	280	4,405	2,117	100		4,514	318	108
\$176,070	\$7,543	\$121,949	\$55,351	\$1,300		\$196,818	\$10,465	109
14,543	676	20,676	3,171	7,259		14,872	1,520	110
\$176,091	\$11,476	\$218,347	\$34,731	\$62,460		\$172,295	\$26,294	111
\$709,028	\$141,554	\$1,195,766	\$224,483	\$221,518	\$93,290	\$1,237,444	\$214,205	112
		\$1,119						113
\$175,299	\$60,449	\$257,863	\$21,528	\$10,448	\$20,021	\$328,607	\$42,618	114
\$800,245	\$32,769	\$865,141	\$507,442	\$298,606	\$26,010	\$862,561	\$42,617	115
\$39,671	\$11,475	\$336,292	\$20,425		\$28,598	\$43,671		116
\$10,961,527	\$1,530,449	\$15,411,032	\$3,831,448	\$3,034,395	\$1,298,066	\$17,844,174	\$1,935,218	117
1,852	23,797	570	34,304	344		93,149	17,981	118
\$85,500	\$1,070,865	\$24,795	\$1,393,524	\$17,195		\$3,915,176	\$900,709	119
2,252	398	570	92	1,232		28,600	771	120
\$105,100	\$17,910	\$25,650	\$3,680	\$59,985		\$1,272,459	\$41,955	121
15,673		54,025		11,026		40,942	3,741	122
\$1,065,234		\$3,870,024		\$724,158		\$2,153,967	\$300,290	123
2,152		3,754				9,047		124
\$207,828		\$408,068				\$571,553		125
2,779		570				376	488	126
\$246,385		\$45,600				\$19,203	\$57,719	127
		7,907				1,918		128
		\$581,376				\$95,064		129
857		1,907						130
\$144,632		\$288,913						131
6,552		19,857		166		17,333	1,448	132
\$816,815		\$1,738,457		\$12,956		\$2,066,243	\$123,080	133
2,170		2,238	948				800	134
\$241,105		\$583,970	\$54,785				\$56,000	135
10,056		5,964		100	2,054	8,703	274	136
\$777,055		\$582,976		\$4,000	\$232,864	\$378,655	\$15,679	137
6,314	191	31,043	2,379			9,429	4,355	138
\$164,873	\$8,595	\$1,366,455	\$83,265			\$427,105	\$187,560	139
9,078	2,325	1,100				5,598	360	140
\$207,610	\$93,179	\$32,812				\$240,008	\$11,520	141
6,100	5,000	1,571	8,517	2,350		16,838	1,000	142
\$208,150	\$285,000	\$72,898	\$445,289	\$100,600		\$705,820	\$27,067	143
12,489	400	18,514	6,737			53,886	1,908	144
\$428,484	\$40,000	\$1,098,897	\$362,552			\$2,448,470	\$120,263	145
760			2,993	1,507		167		146
\$30,400			\$108,580	\$97,959		\$4,592		147
33,953		5		1,352				148
\$366,879		\$150		\$30,349				149
713		2,500		1,340				150
\$23,660		\$62,500		\$33,350				151
24,843		23,893	1,606		3,709			152
\$795,801		\$625,708	\$75,184		\$93,790			153
1,461		320	3,045			5,989		154
\$172,421		\$31,101	\$274,411			\$571,378		155

TABLE 19.—PAPER AND WOOD PULP—DETAILED

		Minnesota.	New Hampshire.	New Jersey.	New York.
	Products—Continued.				
	Other paper products—Continued.				
156	Blotting paper—				
157	Tons.....				
	Value.....				
158	Building, roofing, asbestos, and sheathing papers—				
159	Tons.....	175		20,802	10,963
	Value.....	\$5,650		\$595,647	\$352,521
160	Hanging paper—				
161	Tons.....				42,722
	Value.....				\$1,978,650
162	Miscellaneous—				
163	Tons.....	2,771	173	2,880	8,858
	Value.....	\$97,697	\$11,769	\$86,450	\$790,040
164	Ground wood pulp—				
	Made for own use, tons.....	17,479	58,129		250,334
165	Made to sell as such—				
166	Tons.....	5,000	564		128,695
	Value.....	\$100,000	\$10,800		\$1,921,371
167	Soda fiber—				
	Made for own use, tons.....				9,587
168	Made to sell as such—				
169	Tons.....				17,379
	Value.....				\$623,231
170	Sulphite fiber—				
	Made for own use, tons.....		23,300		110,651
171	Made to sell as such—				
172	Tons.....		91,895	10,281	89,368
173	Value.....		\$3,020,545	\$330,233	\$3,076,740
	All other products.....	\$21,050	\$50,620	\$101,632	\$428,863
	Equipment and capacity:				
	Paper machines—				
174	Fourdriner—				
175	Number.....	4	35	0	155
176	Total width, inches.....	478	3,401	740	14,201
	Capacity per twenty-four hours, tons.....	130	575	44	2,230
177	Cylinder—				
178	Number.....	1	26	47	135
179	Total width, inches.....	42	1,375	3,543	9,672
	Capacity per twenty-four hours, tons.....	14	42	385	815
180	Digestors, for mills making soda—				
181	Number.....				21
	Total capacity, tons per cook.....				20
182	Digestors, for mills making sulphite—				
183	Number.....		23	4	84
	Total capacity, tons per cook.....		110	4	185
184	Grinders, for mills making ground wood pulp—				
185	Number.....	29	101		535
	Total capacity, per twenty-four hours, tons.....	95	284		2,029
186	Yearly capacity of mills—				
187	In paper, tons.....	42,570	181,709	134,952	880,920
188	In pulp, tons.....	24,127	173,066		566,703
189	In soda pulp, tons.....				32,522
	In sulphite pulp, tons.....		126,239	10,000	233,284
190	Power:				
191	Number of establishments reporting.....	4	25	38	177
	Total horsepower.....	7,153	50,328	17,626	395,902
	Owned—				
	Engines—				
192	Steam—				
193	Number.....	14	112	96	469
	Horsepower.....	2,070	13,980	13,855	63,820
194	Gas and gasoline—				
195	Number.....			2	1
	Horsepower.....			603	40
196	Water wheels—				
197	Number.....	41	175	139	985
	Horsepower.....	5,083	35,684	12,868	325,472
198	Electric motors—				
199	Number.....		29	25	83
	Horsepower.....		544	290	5,172
	Rented—				
200	Electric motors—				
201	Number.....			1	12
202	Horsepower.....			10	1,395
203	Other kind, horsepower.....		120		3
	Furnished to other establishments, horsepower.....				250

¹Includes 1 water motor of 10 horsepower.

SUMMARY, BY STATES: 1905—Continued.

Ohio.	Oregon.	Pennsylvania.	Vermont.	Virginia.	West Virginia.	Wisconsin.	All other states.	
1,050		1,660		3,344			NOT	156
\$134,929		\$198,900		\$373,183			\$60,096	157
15,400		67,797				2,608	948	158
\$499,692		\$1,847,762				\$86,846	\$33,280	159
		7,814	1,118			1,754		160
		\$409,560	\$100,699			\$72,609		161
28,127		2,508	9,696		285	267		162
2,799,584		\$223,490	\$580,457		\$19,988	\$41,609		163
4,425	20,977	19,000	28,310	785		89,101	5,288	164
	900		23,529	1,065	9,137	35,645		165
	\$14,900		\$343,336	\$21,000	\$156,052	\$721,751		166
		36,217		1,375		3,744	5,600	167
		17,465		14,282				168
		\$787,098		\$539,860				169
15,000	9,672	9,017	8,908			59,415	4,466	170
9,849		1,415		24,800	19,558	53,632		171
\$413,151		\$57,000		\$1,019,800	\$760,047	\$2,032,452		172
\$526,239		\$446,872	\$5,636		\$35,325	\$19,214		173
37	6	65	19	8		88	12	174
3,200	582	5,614	1,595	792		8,368	1,119	175
299	100	580	209	97		1,112	160	176
59	1	59	21	4	5	5	5	177
4,048	60	4,326	1,104	360	322	392	340	178
554	8	543	73	120	62	36	32	179
7		73		14			5	180
7		65		23			2	181
8	6	16	6	8	4	50	8	182
22	18	48	14	16	22	204	13	183
5	36	5	100	11	10	197	11	184
27	95	26	345	20	31	601	287	185
281,075	32,725	327,505	84,742	32,980	5,428	345,879	42,760	186
5,321	23,500	4,400	87,509	20,800	9,500	193,720	8,100	187
		73,873		15,000			5,600	188
28,829	14,100	52,274	9,300	18,700	23,780	141,325	12,274	189
53	4	65	28	9	7	52	8	190
37,189	12,735	56,090	43,673	8,220	4,576	108,008	6,252	191
182	16	331	65	40	19	95	33	192
31,821	1,663	48,126	6,255	4,040	2,865	22,722	5,700	193
8		1			2			194
277		25			400			195
45	43	74	166	21	3	506	6	196
4,190	10,982	6,631	36,697	3,760	1,310	83,138	400	197
23	4	71	11	11	1	74	4	198
901	90	1,253	721	420	1	2,068	152	199
		55				80		200
						205		201
			2					202
								203

PRINTING AND PUBLISHING

(699)

PRINTING AND PUBLISHING.

By WILLIAM S. ROSSITER, Chief Clerk of the Bureau of the Census.

INTRODUCTION.

Printing occupies a unique position among industries and in certain aspects excels all others in interest, since the printed page has done more to advance civilization than any other human agency. The industry thus possesses an importance that can not be measured by capital invested or volume and value of products.

Other industries, whether old as the race itself or the result of modern inventive genius, occupy their appropriate places in daily affairs. The removal of any one of these might cause annoyance or even serious embarrassment in the shop or home—the elimination of printing would substitute darkness for light. Therefore interest in the progress and prosperity of printing is not confined principally to those who are connected with it, as is frequently the case with other industries, but is shared by the entire community.

The Census groups newspaper and periodical publication, book and job printing, and music printing, under the general title “printing and publishing.” This classification was begun at the Eleventh Census (1890), after an unsuccessful attempt in 1880 to secure returns for printing and publishing as distinct from the publication of newspapers and periodicals. The existing classification is not, however, entirely satisfactory, since many newspaper offices also produce job printing, and in these it is impossible to apportion the amount contributed by each branch to the aggregate, except in the case of paper used and value of products.

As might be expected from this state of affairs, little attempt was made in 1880 and 1890 to analyze the value of products of job printing, as distinguished from newspaper and periodical publication. In 1900,

however, a more determined effort was made to secure such separation, and in the present report a still more complete segregation has been attempted, although the result is still, as it must always be from the character of the industry, more or less unsatisfactory.

This report presents the statistics of the printing and publishing industry for the calendar year 1904, compiled as part of the first Federal quinquennial census of manufactures, 1905. So great has been the momentum of industrial advance that the increase from the census of 1900 to that of 1905 often exceeds, sometimes to a striking degree, the increase which occurred during the preceding ten years. This results in a seeming comparability of the returns for the census of 1905 with those for prior censuses, which is likely to be misleading unless it is distinctly understood that but half the usual census period is covered.

The printing and publishing industry as a whole is first considered, and the two principal branches—book and job printing (including music) and newspapers and periodicals—are then discussed. Under the second branch occur further subdivisions—receipts from subscriptions and sales, receipts from advertising, and the circulation of newspapers and periodicals by various classifications.

The results of the census of 1905 are presented in detail in the extended tables which appear at the conclusion of the report. The text and derivative tabulations are presented for the sole purpose of tracing and illustrating those statistical and economic changes in this industry, which appear to be of especial significance and interest.

THE INDUSTRY.

Analysis of the printer's calling has become to a noteworthy degree an analysis of the general commercial prosperity of the nation. If the country is especially prosperous, producers advertise in newspapers and magazines upon a generous scale, the public subscribes liberally to various classes of periodicals, and the man who has something to promote or sell

prints large quantities of pamphlets and circulars with a degree of elegance and expenditure in proportion to his prosperity and also to the buying power, as he estimates it, of the community. On the other hand, if the country is passing through a period of depression, the advertiser economizes, for not only are his own resources less, but he is skeptical concerning the buying

power of the public; subscriptions to newspapers and magazines are cut off, for these are among the early economies which attend a decreasing income; and the customer for job printing argues over economies in material and method of presentation.

This sensitive relation to the prosperity of other callings is of comparatively recent occurrence. Half a century ago the printer shared little in current business. In 1845, for example, the president of Yale college penned his official letters on blank sheets of blue paper in accordance with the custom of that period.

Now, however, the printer is a necessity in connection with all commercial, professional, and official correspondence; moreover, he is an increasingly important factor in connection with the conduct of every form of human activity, since printing and advertising, one or both, are the means adopted by most men to secure business expansion. Hence in our time the printing and publishing industry touches every citizen; it is identified with all callings, and prospers with their prosperity.

TABLE 1.—PRINTING AND PUBLISHING—COMPARATIVE SUMMARY, WITH PER CENT OF INCREASE: 1880 TO 1905.

	CENSUS.				PER CENT OF INCREASE.		
	1905	1900	1890	1880	1900 to 1905	1890 to 1900	1880 to 1890
Number of establishments.....	26,422	22,311	16,566	(1)	18.4	34.7	.....
Capital.....	\$385,008,604	\$292,516,642	\$195,387,445	(1)	31.6	49.7	.....
Salaried officials, clerks, etc., number.....	64,969	37,799	28,391	(2)	71.9	33.1	.....
Salaries.....	\$63,036,582	\$36,090,719	\$26,272,756	(3)	74.7	37.4	.....
Wage-earners, average number.....	185,180	162,992	136,836	(4)	13.6	19.1	.....
Total wages.....	\$108,882,518	\$84,249,954	\$78,810,319	\$59,100,993	29.2	6.9	.....
Men 16 years and over.....	142,555	125,964	110,434	(1)	13.2	14.1	.....
Wages.....	\$95,744,540	\$74,288,521	\$71,310,415	(1)	28.9	4.2	.....
Women 16 years and over.....	37,614	28,765	19,026	(1)	30.8	51.2	.....
Wages.....	\$12,267,443	\$8,878,073	\$6,604,046	(1)	38.2	34.4	.....
Children under 16 years.....	5,011	8,263	7,376	(1)	439.4	12.0	.....
Wages.....	\$870,535	\$1,083,342	\$895,858	(1)	419.6	20.9	.....
Miscellaneous expenses.....	\$102,466,410	\$55,897,871	\$46,971,768	(5)	83.3	19.0	.....
Cost of materials used.....	\$123,470,804	\$86,856,160	\$68,858,915	(1)	42.2	26.1	.....
Value of products.....	\$496,061,357	\$347,054,430	\$275,452,515	\$179,988,415	42.9	26.0	53.0

¹Data returned for book and job printing only; therefore not shown here.

²Includes proprietors and firm members with their salaries; number only reported in 1900 and 1905, but not included in this table.

³Not reported separately.

⁴Decrease.

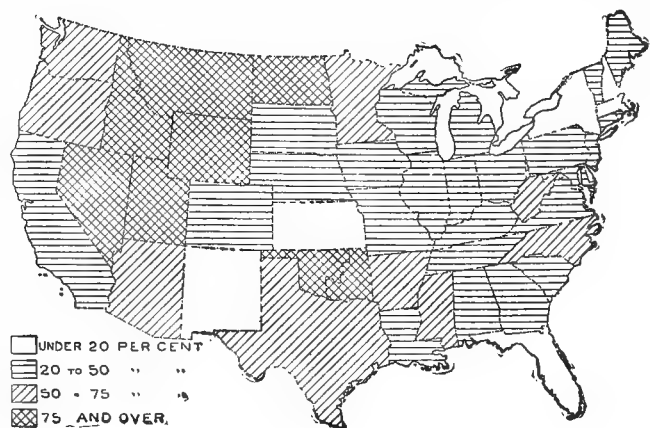
⁵Not reported.

NUMBER OF ESTABLISHMENTS.

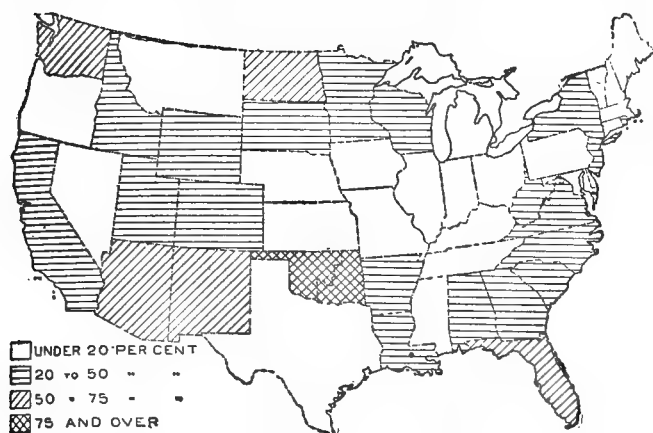
At the census of 1905 the total number of establishments engaged in printing and publishing was larger than the number reported for any other one industry. This results from the fact that printing and publishing is one of the least localized of industries, for even in very small communities the printing office is almost as necessary as the post office. Interest in this fact increases when it is observed that printing and publishing forms a striking exception to the prevailing tendency toward consolidation, accepted as one of the signs of the times in the industrial world, for the increase in number of printing establishments was greater proportionately from 1900 to 1905 than from 1890 to 1900. Hence the industry continues to be composed of a great number of small establishments, in most of which noteworthy results are accomplished with small capital by men of independent thought and

action, who contribute a large share to the intellectual and financial growth of the country.

MAP 1.—States showing specified per cent of increase in number of establishments: 1890 to 1900.



MAP 2.—States showing specified per cent of increase in number of establishments: 1900 to 1905.

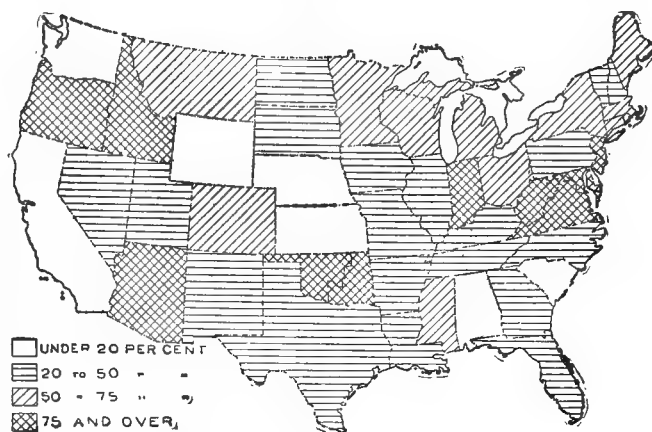


It must not be assumed, however, that the pronounced movement of the present period toward concentration and consolidation has had no effect upon the printing industry. For, while printing and publishing is almost unique among industries in the diffusion of establishments, the effect of the general tendency toward concentration has been either to increase the proportions in which the principal states in the industry contribute to the total value of products or to enable these states to maintain the proportions already secured. Meantime the small rural establishments scattered all over the country are showing proportionate growth and prosperity.

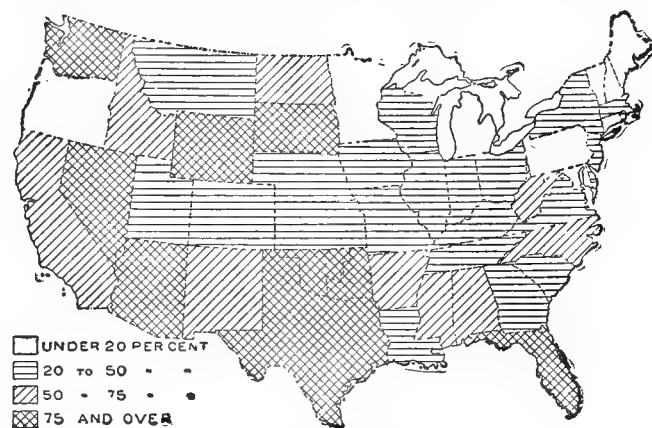
CAPITAL.

In 1905 the capital required for the conduct of the printing and publishing business was approximately double that required in 1890. This is in harmony with the tendency toward rapid increase of capital which has proved to be a marked characteristic of the period 1890 to 1905. In 1890 in this industry \$1,000 of capital produced products valued at \$1,409.78, but in 1905, \$1,000 of capital produced products worth only \$1,288.44. Because of the difficulty of securing accurate and comparable figures for capital these figures can be taken only as an indication of the trend of the industry. It should be observed, however, that the marked increase in capital from 1890 to 1905 may have resulted from causes different from those which produced the corresponding increase in other industries. In the printing and publishing business the period from 1890 to 1905 was the most significant in mechanical change of any since the invention of printing, and the increase in capital unquestionably reflects the readjustment of plants both large and small to the new and exacting requirements. Another factor contributing to this increase is the marked increase in number of establishments during the period mentioned.

MAP 3.—States showing specified per cent of increase in capital: 1890 to 1900.



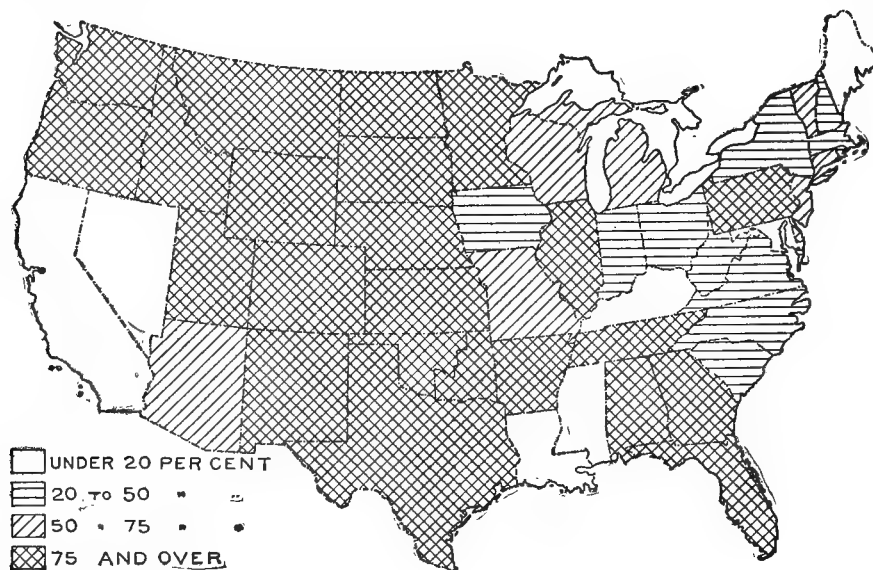
MAP 4.—States showing specified per cent of increase in capital: 1900 to 1905.



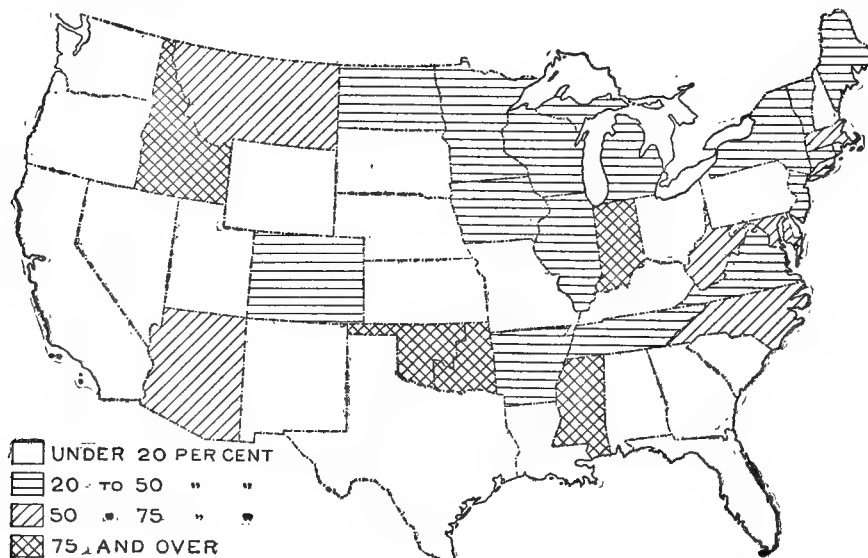
VALUE OF PRODUCTS.

When measured by percentage of increase, the growth in value of products from 1900 to 1905 was very striking. It was almost equal to that recorded for the entire decade from 1880 to 1890 and nearly double that from 1890 to 1900. The actual or absolute increase is even more noteworthy. The total value of products increased approximately \$100,000,000 from 1880 to 1890 and almost \$75,000,000 from 1890 to 1900, but nearly \$150,000,000 in the succeeding five years. Had printing and publishing reported in 1905 the same value of products (\$180,000,000) which enabled it to rank tenth among American industries in 1880 it would have sunk to the twenty-third position. The extraordinary increase which thus occurred in a quarter of a century is the most eloquent argument that can be advanced in behalf of the increasing influence and importance of the printing and publishing industry. It reflects the growing necessity for printed matter in all the operations of business and society, as well as the increasing volume of books and newspapers.

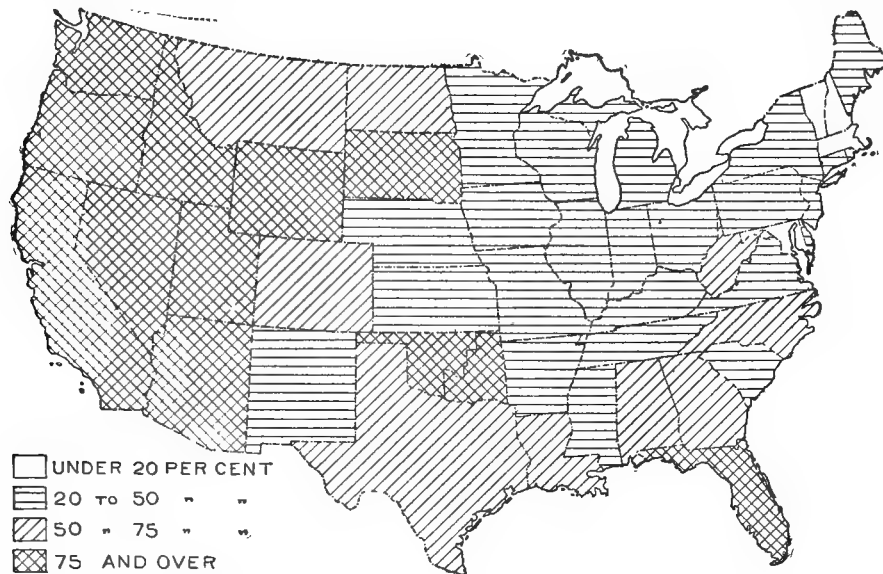
MAP 5.—STATES SHOWING SPECIFIED PER CENT OF INCREASE IN VALUE OF PRODUCTS: 1880 TO 1890.



MAP 6.—STATES SHOWING SPECIFIED PER CENT OF INCREASE IN VALUE OF PRODUCTS: 1890 TO 1900.



MAP 7.—STATES SHOWING SPECIFIED PER CENT OF INCREASE IN VALUE OF PRODUCTS: 1900 TO 1905.



The volume of product of American industries, and especially the one with which this report deals, has advanced so steadily from decade to decade that the American people have come to regard liberal increase in manufactured product as a matter of course and fail to appreciate the magnitude of the advance except by comparison with results achieved at earlier periods. Perhaps the most effective method of measuring this change in connection with the printing industry is to apply the per capita value of printing products shown at various census years to the population of 1905 and also to apply the per capita value of printing product for 1905 to the population of the earlier periods. Full returns for printing and publishing were first given at the census of 1850, and though the value of products then reported can not be regarded as entirely accurate, it may be accepted as having value as a starting point. The per capita value of products of printing in 1850 was 64 cents. Had it been the same in 1905, the entire value of products of the industry in the latter year would have been but \$52,007,588, as compared with a product of \$496,061,357 actually reported. On the other hand, had the per capita production in 1850 been the same as it was in 1905, the total value of products of the industry at the earlier census would have amounted to \$141,470,444, or almost ten times as great as the actual amount recorded at the census of 1850.

The earliest reliable statistics of total value of products for all industries were those for the census of

1850. In that year the total value was reported as \$1,019,106,616, while the value of products contributed by printing and publishing was reported as \$14,812,227. Thus the increase from 1850 to 1905 shown by all industries was almost fifteenfold, while that recorded by printing and publishing was nearly thirty-two fold.

TABLE 2.—Total and per capita value of products of all industries and of printing and publishing, and per cent which printing and publishing forms of all industries: 1850 to 1905.

CENSUS.	TOTAL VALUE OF PRODUCTS.			PER CAPITA VALUE OF PRODUCTS.	
	All industries.	Printing and publishing.	Per cent printing and publishing forms of all industries.	All industries.	Printing and publishing.
1905 ¹	\$16,866,706,985	\$496,061,357	2.9	\$207.37	\$6.10
1900.....	13,004,400,143	347,054,430	2.7	170.98	4.53
1890.....	9,372,437,283	275,452,515	2.9	148.82	4.37
1880.....	5,369,579,191	179,988,415	3.4	107.06	3.59
1870.....	4,232,325,442	80,939,756	1.9	109.76	2.10
1860.....	1,885,861,676	34,815,478	1.8	59.97	1.11
1850.....	1,019,106,616	14,812,227	1.5	43.94	0.64

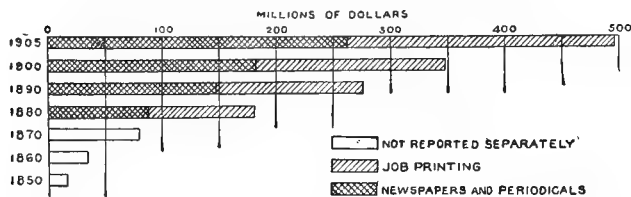
¹ Exclusive of governmental establishments.

² Includes estimated figures for mechanical and neighborhood industries to make comparable with previous years.

³ Population for 1905 is that estimated by this Bureau as of June 1, 1904.

During the period from 1850 to 1905 the per capita value of products for all industries of the United States nearly quintupled, but the per capita value of products of printing and publishing increased almost tenfold.

DIAGRAM 1.—Value of products: 1850 to 1905.



It seems clear, therefore, that great as the momentum of advance has been in all manufactures, the proportion of increase in the printing and publishing industry has been greater than that which occurred in all industries during the half century covered.

COMPARISON WITH LEADING INDUSTRIES.

Practically all the changes shown by the summarized results of the census of 1905 (Table 1), emphasize the remarkable prosperity of the industry during the brief period covered. Furthermore, it appears that printing and publishing scored a greater percentage of increase than did all industries combined (29.7). This can not, however, be regarded as an entirely conclusive test of the progress of the printing industry, for such is the diversity of callings included in the census of manufactures that comparative depression might exist in some industries, or even in certain localities in the same industry, at a time when great prosperity existed in others. Hence, in order to establish at the outset some standard by which to measure the changes in the printing and publishing industry, it is important to determine its relative position among the various industries of the nation. Is the advance in printing and publishing exceptional among all industries? Are the other industries which approximate to this one in total value of products showing similar changes?

In 1905 there were 10 industries which reported a value of products materially greater than \$300,000,000. The total value of products contributed by this group of industrial giants, of which printing and publishing is one, amounted to \$6,163,649,683, or 41.6 per cent of the entire value of products contributed by all of the industries—more than three hundred in number—embraced in the Census classifications. In value of products these 10 great industries rank as follows: Slaughtering and meat packing, iron and steel,¹ foundries and machine shops,² flour and grist mills, clothing, lumber and timber, printing and publishing, cotton manufactures, woolen manufactures, and boots and shoes. Thus printing and publishing ranked seventh in 1905. It occupied the same position in 1900 and 1890, but in 1880 was tenth, or the last member of the group.

¹ Blast furnaces; and steel works and rolling mills.

² Including locomotives; and stoves and furnaces.

Of the 10 great industries specified, 5 showed a decided decrease in number of establishments from 1900 to 1905, 1 was stationary, and 3 showed small increases; printing and publishing was the only industry of the 10 to oppose the trend toward consolidation of establishments. In 1905 printing and publishing reported 1 establishment to every 3,076 persons; at the opposite extreme is the iron and steel industry, which contributed but 1 establishment to every 134,000 persons.

Comparing the percentages of increase in value of products for the 10 industries specified, printing and publishing ranked fourth for the decade 1880 to 1890, seventh for the decade 1890 to 1900, and first for the period 1900 to 1905. Comparing the increase in absolute or actual money value of products for the decade 1880 to 1890, 4 of the 10 industries greatly exceeded that shown for printing and publishing. The number showing excess increased to 5 for the decade 1890 to 1900 the absolute increase in value of products in the case of iron and steel being five times as great as that shown by printing and publishing. For the period 1900 to 1905, however, only 3 industries have shown an absolute increase materially greater than that for printing and publishing.

In average value of products per establishment in 1905 printing and publishing and iron and steel were again at opposite extremes in the group of the 10 specified industries, that of the former being approximately \$19,000 and that of the latter approximately \$1,500,000; in the case of printing and publishing, however, the average value has remained practically stationary since 1890, while in the case of iron and steel the average has more than doubled. The other industries in the group conform to the tendency shown by iron and steel rather than to that shown by printing and publishing, for in no other industry is the average per establishment for the three census periods so uniform as that of printing and publishing, and in most instances the increase is as large as that shown by iron and steel.

The per capita value of products for the entire group of 10 industries in 1900 was \$65.36. This increased to \$75.85 in 1905,³ a net advance of \$10.49. Among the members of the group the per capita in 1905 varied from \$3.94, for boots and shoes, to \$11.25, for slaughtering and meat packing. Midway between these was the per capita for printing and publishing, which in 1905 was \$6.10, an increase since 1900 of \$1.53, an amount of per capita increase exceeded only by that for but 2 other industries in the group. Furthermore, the per capita value of products of the 10

³ Population for 1905 is that estimated by this Bureau as of June 1, 1904.

industries, when analyzed by geographic divisions, in most cases shows violent fluctuations; that for slaughtering and meat packing, for example, ranges from 4 cents to \$21. In the case of printing and publishing, however, the per capita ranges from \$2 to \$10—again suggesting characteristic differences, but especially the noteworthy diffusion of the industry.

From these comparisons it is evident that the changes shown by the printing and publishing industry from 1900 to 1905 in many respects are more marked than either those shown by all industries combined or those shown by the remaining members of the group of 10 leading industries. In rapidity of increase in value of products printing and publishing appears, indeed, to have outstripped the other leading industries, although the period was one of remarkable general prosperity. This fact is especially significant, since the increase in value of printing and publishing products from 1880 to 1890 was not exceptional, and the increase during the succeeding decade, 1890 to 1900, was even less than appeared to be justified by the general prosperity of the nation.

THE INDUSTRY BY GEOGRAPHIC DIVISIONS AND STATES.

The contributions of the various states and territories¹ to the aggregates reported in Table 1 suggests an interesting comparison of changes which have occurred in the individual states and in the groups at each census since 1880.

Geographic divisions.—During the period from 1890 to 1905 the increase in number of establishments was considerable only in those divisions in which extensive changes in population took place (principally in the South and West). In those divisions capital also had the largest increase.

During the period 1890 to 1905 the value of products showed a tendency to double in each of the geographic divisions, but only in the far West did the increase exceed 100 per cent. During the twenty-five years from 1880 to 1905, however, the change was so great that the value of products tripled in two of the five divisions, and much more than doubled in two of the other divisions.

¹ For distribution by states, see Table 67, page 753.

TABLE 3.—PRINTING AND PUBLISHING—COMPARATIVE SUMMARY, BY GEOGRAPHIC DIVISIONS: 1880 TO 1905.¹

DIVISION.	Census.	Number of establishments.	Capital.	Salaries and wages.	Miscellaneous expenses.	Cost of materials used.	Value of products.
North Atlantic.....	1905	7,687	\$193,788,008	\$81,339,515	\$57,855,508	\$59,236,238	\$242,625,110
	1900	6,670	154,786,226	59,418,017	33,325,614	44,387,018	177,013,357
	1890	5,494	99,821,095	48,275,992	26,863,688	32,847,397	135,036,691
	² 1880			28,771,828			95,458,338
New England.....	1905	1,887	35,223,986	16,812,774	9,692,036	12,178,592	46,764,193
	1900	1,791	29,389,898	13,399,388	7,070,194	9,482,559	39,555,643
	1890	1,461	19,239,842	10,096,225	5,271,119	6,993,671	27,398,391
	² 1880			7,132,382			21,357,127
Southern North Atlantic.....	1905	5,800	158,564,022	64,526,741	48,163,472	47,057,646	195,860,917
	1900	4,879	125,396,328	46,018,629	26,255,420	34,904,459	137,457,714
	1890	4,033	80,581,253	38,179,767	21,592,569	25,853,726	107,638,300
	² 1880			21,639,446			74,101,211
South Atlantic.....	1905	1,916	20,300,222	8,015,431	3,768,909	5,204,693	22,169,270
	1900	1,604	15,542,877	6,101,395	1,911,800	3,953,477	15,939,852
	1890	1,183	9,557,489	7,146,931	1,526,114	4,158,551	15,547,907
	² 1880			4,352,582			11,284,987
North Central.....	1905	11,304	126,150,591	58,710,114	31,460,439	44,713,505	168,968,975
	1900	9,832	93,308,926	41,069,739	16,949,609	30,181,722	117,866,556
	1890	7,238	64,313,166	36,105,959	14,222,305	25,053,451	94,396,614
	² 1880			18,549,161			53,658,231
South Central.....	1905	2,961	22,590,120	10,093,005	4,046,925	6,396,596	27,202,697
	1900	2,344	14,597,587	6,183,284	1,736,220	3,929,589	16,853,260
	1890	1,488	10,677,549	6,039,976	1,996,744	3,232,873	14,090,944
	² 1880			3,526,944			9,304,327
Western.....	1905	2,537	22,112,533	13,748,927	5,290,117	7,910,185	34,990,304
	1900	1,841	14,126,906	7,512,008	1,958,580	4,355,254	19,211,282
	1890	1,144	10,886,182	7,454,808	2,339,173	3,481,857	16,173,618
	² 1880			3,900,478			10,282,532

¹ This table does not include the statistics for the states included under "not distributed by states" in Table 67.

² Only salaries and wages and value of products reported for this year.

DIAGRAM 2.—Value of products, by geographic divisions: 1880 to 1905.

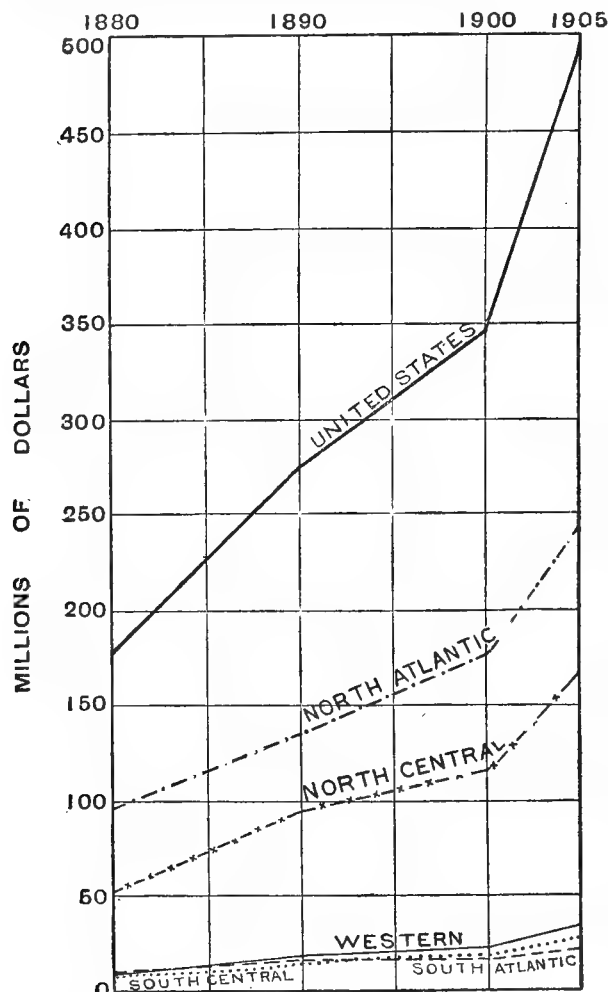


TABLE 4.—Printing and publishing—per cent of increase in number of establishments, capital, and value of products, by geographic divisions: 1880 to 1905.

DIVISION.	NUMBER OF ESTABLISHMENTS.		CAPITAL.		VALUE OF PRODUCTS.		
	1900 to 1905	1890 to 1900	1900 to 1905	1890 to 1900	1900 to 1905	1890 to 1900	1880 to 1900
Continental United States...	18.4	34.7	31.6	49.7	42.9	26.0	53.0
North Atlantic.....	15.2	21.4	25.2	55.1	37.1	31.1	41.5
New England.....	5.4	22.6	19.9	52.8	18.2	44.4	28.3
Southern North Atlantic.....	18.9	21.0	26.5	55.6	42.5	27.7	45.3
South Atlantic.....	19.5	35.6	30.6	62.6	39.1	12.5	37.8
North Central.....	15.0	35.8	35.2	45.1	43.4	24.9	75.9
South Central.....	26.3	57.5	54.8	36.7	61.4	19.6	51.4
Western.....	37.8	60.9	56.5	29.8	82.1	18.8	57.3

¹ Governmental establishments included in 1880 and 1890 only.

The North Atlantic division contributed in 1905 practically half of the capital and value of products reported for the entire industry. But the percentages shown indicate a slight decrease in proportion of capital since 1890 and a more marked decrease in proportion of value of products since 1880.

TABLE 5.—Printing and publishing—per cent distribution of capital and of value of products, by geographic divisions: 1880 to 1905.

DIVISION.	CAPITAL.			VALUE OF PRODUCTS.			
	1905	1900	1890	1905	1900	1890	1880
Continental United States.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0
North Atlantic.....	50.3	52.9	51.1	48.9	51.0	49.0	53.0
New England.....	9.1	10.0	9.8	9.4	11.4	9.9	11.9
Southern North Atlantic.....	41.2	42.9	41.2	39.5	39.6	39.1	41.2
South Atlantic.....	5.3	5.3	4.9	4.5	4.6	5.6	6.3
North Central.....	32.8	31.9	32.9	34.1	34.0	34.3	29.8
South Central.....	5.9	5.0	5.5	5.5	4.9	5.1	5.2
Western.....	5.7	4.8	5.6	7.1	5.5	5.9	5.7

Consideration of the value of products for the industry by geographic divisions is not complete without some analysis of the average per establishment. The average reported in the South Central division, both in 1900 and in 1905, was a little less than half of the average for continental United States, while the average for the North Atlantic division, in each year, was nearly double that reported for the entire country. In average value of products per establishment New York state led in 1905, with \$42,654, while at the other extreme among the states was Mississippi, with scarcely more than one-tenth of that product (\$4,341) as the average per establishment. In each of these states, as also in continental United States, there was a liberal increase in the average from 1900 to 1905; the increase for continental United States and for New York state was approximately one-fifth, and that for Mississippi one-tenth.

TABLE 6.—Printing and publishing—average value of products per establishment, by geographic divisions: 1905 and 1900.

DIVISION.	AVERAGE VALUE OF PRODUCTS.	
	1905	1900
Continental United States.....	\$18,775	\$15,555
North Atlantic.....	31,563	26,539
New England.....	24,782	22,086
Southern North Atlantic.....	33,769	28,173
South Atlantic.....	11,570	9,938
North Central.....	14,948	11,988
South Central.....	9,187	7,190
Western.....	13,792	10,436

The variation of value of products shown by geographic divisions is so great as to suggest that the fluctuation must be even more pronounced in individual states.

States and territories.—In 1880, 18 states and territories reported printing and publishing products valued at less than \$1,000,000; in 1905 there were only 10 in this class, and 3 of the 10 barely failed to cross the million line. In 1880 but 1 state had products exceeding \$20,000,000 in value, 5 exceeding \$10,000,000, and 7 exceeding \$5,000,000; in 1905 there were 6, 10,

and 17, respectively. One state, New York, having nearly tripled its products in the quarter century, reported in 1905 more than three-fourths as much as the total value of products of the entire industry in 1880. Next to the extraordinary increment of millions, the most impressive fact is the general uniformity of increase. Changes, however, are more clearly indicated by percentages than by absolute figures; these may be observed by inspection of Table 7.

TABLE 7.—*Printing and publishing—per cent of increase in number of establishments, capital, and value of products, by states and territories: 1880 to 1905.*

STATE OR TERRITORY.	NUMBER OF ESTABLISHMENTS.		CAPITAL.		VALUE OF PRODUCTS.		
	1900 to 1905	1890 to 1900	1900 to 1905	1890 to 1900	1900 to 1905	1890 to 1900	1880 to 1890
Continental United States	18.4	34.7	31.6	49.7	42.9	26.0	53.0
Alabama	23.0	33.3	73.5	11.4	67.8	3.3	98.6
Arizona	56.3	52.4	112.8	85.5	98.3	53.3	61.5
Arkansas	20.4	52.3	69.0	40.5	42.3	24.2	95.3
California	40.6	49.7	67.0	12.8	81.2	15.0	17.8
Colorado	49.6	48.7	40.0	73.2	53.1	34.9	99.7
Connecticut	13.8	26.9	9.2	61.1	23.3	28.6	51.9
Delaware	17.9	5.4	21.8	6.5	20.7	7.4	80.0
District of Columbia	10.8	106.3	0.2	74.2	44.0	147.7	46.8
Florida	55.0	16.3	162.4	23.6	88.8	6.3	327.9
Georgia	23.0	20.6	48.6	40.7	61.2	112.0	77.2
Idaho	31.9	137.9	70.7	97.3	78.8	91.1	323.1
Illinois	14.1	44.7	48.0	41.2	45.8	23.0	123.0
Indian Territory	181.0	625.0	314.7	383.4	249.2	546.8	21,484.4
Indiana	7.2	37.2	48.8	90.8	32.2	81.3	20.2
Iowa	6.9	46.6	27.0	39.0	34.9	35.0	30.5
Kansas	9.1	10.8	38.1	11.2	30.5	11.6	100.4
Kentucky	18.8	37.5	39.2	23.2	47.1	7.7	9.1
Louisiana	22.0	24.8	26.7	46.9	55.8	1.6	5.0
Maine	3.5	41.1	3.7	54.2	25.6	37.5	133.3
Maryland	1.7	38.1	11.6	80.7	12.8	53.6	4.2
Massachusetts	3.1	19.0	23.9	34.0	15.4	51.3	35.6
Michigan	14.9	31.1	15.6	51.8	45.5	27.9	61.0
Minnesota	26.7	66.7	12.4	59.8	44.6	36.0	183.6
Mississippi	16.6	53.4	54.2	54.4	26.8	83.1	124.0
Missouri	9.6	41.4	39.0	38.5	49.9	18.1	61.9
Montana	3.4	117.1	32.8	51.4	51.5	72.4	212.3
Nebraska	13.5	25.1	24.8	14.6	44.9	6.5	184.7
Nevada	0.0	163.6	81.5	26.0	127.7	4.3	176.2
New Hampshire	13.1	7.6	17.2	31.2	8.1	13.7	47.2
New Jersey	25.5	48.0	35.1	94.8	40.5	41.6	69.8
New Mexico	51.4	12.9	63.2	36.1	41.7	14.4	191.2
New York	22.5	17.5	29.0	69.0	44.9	37.7	32.6
North Carolina	27.1	52.6	60.6	47.0	59.1	52.8	30.0
North Dakota	63.6	79.5	72.3	27.4	54.2	42.9	381.4
Ohio	17.8	27.0	30.2	53.4	38.3	18.6	35.5
Oklahoma	154.9	580.0	209.6	756.2	205.3	570.6	(2)
Oregon	18.9	54.6	0.5	89.6	86.3	3.4	175.9
Pennsylvania	11.9	20.7	19.8	30.0	36.5	5.9	76.0
Rhode Island	22.1	30.0	40.4	50.4	44.6	33.6	26.4
South Carolina	25.0	33.3	39.0	15.0	31.5	10.7	30.5
South Dakota	35.4	38.3	89.6	22.4	76.3	10.4	(3)
Tennessee	18.7	35.9	22.4	49.8	46.6	28.6	86.9
Texas	9.7	72.7	84.6	28.4	70.8	15.3	132.9
Utah	26.3	158.1	27.5	22.0	90.3	4.9	87.6
Vermont	2.0	30.8	14.6	20.6	19.9	23.8	59.1
Virginia	20.6	21.0	29.8	94.4	44.6	37.0	22.9
Washington	51.6	69.7	132.4	13.2	150.8	10.6	1,563.6
West Virginia	24.7	54.8	52.8	129.8	50.1	71.3	24.0
Wisconsin	21.6	33.6	24.3	63.9	49.0	26.0	50.1
Wyoming	23.7	81.0	85.4	7.5	98.4	17.5	304.3

¹ Decrease.

² Indian Territory and Oklahoma reported as Indian Territory in 1880. Per cent of increase shown as for Indian Territory.

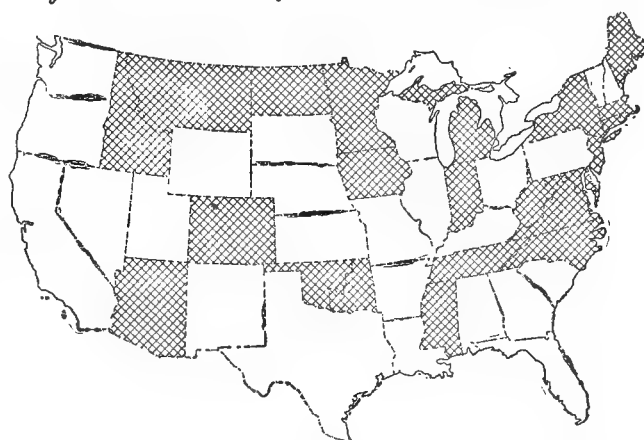
³ North Dakota and South Dakota reported as Dakota territory in 1880. Per cent of increase shown as for North Dakota.

The returns for capital in 1905 were characterized by bolder figures than those for 1900. In but 16 states was the increase, on a decade basis; less from 1900 to 1905 than from 1890 to 1900; in most of the other states the actual increase for the five years was greater than that for the previous ten, a reminder of the

activity and prosperity of the period. In fact, if considered upon a decade basis, 18 states would show much more than doubled capital, as compared with 3 which doubled from 1890 to 1900.

In value of products, always the most interesting and significant item, the changes shown by the percentages presented in Table 7 are especially suggestive. Practically all of the states showed proportionately greater increase in 1905 than in 1900. Although 3 states reported a decline from 1880 to 1890 and 7 from 1890 to 1900, there were no decreases from 1900 to 1905. Upon a decade basis, 21 states doubled or more than doubled the value of their products; Washington reported value of products one and a half times greater in the five-year period, closely followed, it should be noted, by Nevada, which appears to have at last broken a long record of decline. The increase in value of products was especially noteworthy in states in the southwest and the northwest, many of which are remote from large commercial centers, but the states conspicuous for urban population continued to contribute the greater part of the value of products. In 1905,¹ 6 states—New York, Illinois, Pennsylvania, Massachusetts, Ohio, and Missouri—reported almost exactly two-thirds of the value of products of the entire industry. The relation of the value of the combined product of these 6 states to that of all the states has varied but little since 1880, suggesting that the conditions which created prosperity in the printing and publishing industry in one section affected all the states, so that in that respect one section possessed practically no advantage over another.

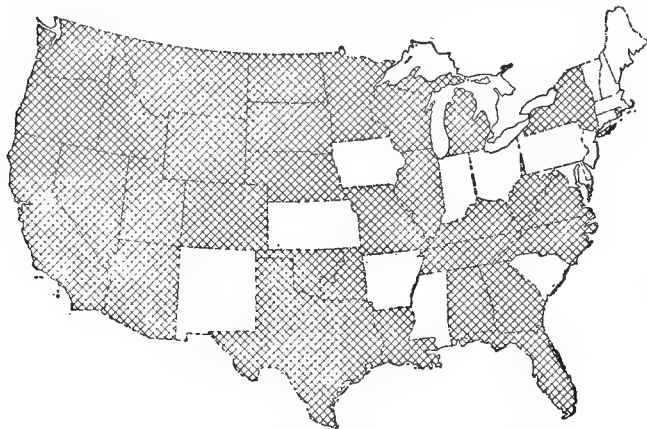
MAP 8.—*States in which per cent of increase in value of products was greater than the increase for the United States: 1890 to 1900.*



In the remaining 44 states and territories which contributed 33.4 per cent of the total value of products, 19.8 per cent was contributed by 11 states and territories and 13.6 per cent by 33. The proportions, it should be observed, continued remarkably uniform from 1880 to 1905, varying less than 2 per cent in that period.

¹ For detailed figures, see Table 67, page 753.

MAP 9.—States in which per cent of increase in value of products was greater than the increase for the United States: 1900 to 1905.



In short, the printing industry is probably exceptional in the general uniformity of the proportionate contributions from decade to decade of groups of states to total value of products, since in many industries there existed a tendency to develop new centers of production, which in turn have exerted a marked influence upon the aggregate value of products.

COMPARISON OF THE TWO BRANCHES OF THE INDUSTRY.

Thus far consideration has been confined to the industry as a whole. It will be recalled, however, that as grouped by the Census, printing and publishing is

composed of two distinct parts—book and job printing (including music) and newspaper and periodical publication. Before presenting the returns for each separately it is essential to understand the relative importance of the two branches or allied industries. In 1905 for the first time the cost of materials and value of products is presented for establishments reported as producing either book and job printing or newspapers and periodicals, exclusively, and for establishments reported as producing both. The value of the tables presenting these statistics will increase as comparative figures are added at future censuses.

The most important facts to be noted in connection with the analysis of the two branches of the industry are obviously the comparative importance of the two branches, the changes, if any, in that respect, and the relative increase in the two in different sections of the country.

Relative importance of the two branches.—The total number of establishments in the industry in 1905 was shown in Table 1 to be 26,422. Of this number about one-third were exclusively book and job establishments, one-sixth exclusively newspaper and periodical establishments, and over one-half were combination establishments¹—producing both book and job printing and newspapers and periodicals.

¹ See Tables 73 and 74, pages 778 and 780, for totals and distribution by states.

TABLE 8.—PRINTING AND PUBLISHING—VALUE OF PRODUCTS IN EACH CLASS OF ESTABLISHMENT, BY GEOGRAPHIC DIVISIONS: 1905.

DIVISION.	BOOK AND JOB PRODUCTS.			NEWSPAPER AND PERIODICAL PRODUCTS. ²		
	Total.	Exclusive establishment.	Combination establishment. ¹	Total.	Exclusive establishment.	Combination establishment.
Continental United States.....	\$233,230,842	\$186,759,503	\$46,471,339	\$256,816,282	\$184,736,800	\$72,079,482
North Atlantic.....	115,058,737	92,774,399	22,284,338	124,781,692	94,869,929	29,911,763
New England.....	22,210,159	17,452,765	4,757,394	23,839,744	19,542,360	4,297,384
Southern North Atlantic.....	92,848,578	75,321,634	17,526,944	100,941,948	75,327,569	25,614,379
South Atlantic.....	10,222,564	8,045,240	2,177,324	11,807,779	7,883,425	3,924,354
North Central.....	82,807,727	67,785,600	15,022,127	83,833,602	58,121,354	25,712,248
South Central.....	11,713,013	8,103,867	3,609,146	15,062,302	9,547,095	5,515,207
Western.....	13,323,800	9,945,396	3,378,404	21,330,907	14,314,997	7,015,910
Not distributed by states ³	105,001	105,001	.....	.....	.....	.....

¹ Includes book and job printing only.

² Includes receipts from advertising, and subscription and sales only.

³ Includes states as follows: Book and job printing—Nevada, New Mexico. Music—California, Georgia, Indiana, Iowa, Maryland, Michigan, Minnesota, Nebraska, New Jersey, Tennessee.

In value of products the exclusive establishments were on practically even terms. But in the combination establishments there was evidently a clearly-defined tendency to devote the main purpose of the establishments to newspaper production, for the value of newspaper and periodical products greatly exceeded that of book and job products. The total

value of both job printing and newspaper and periodical products, reported by combination establishments, \$118,550,821, was approximately but 25 per cent of the aggregate value of products of the industry. The changes which have occurred between 1900 and 1905 and the relative importance in the two branches may be observed from the table which follows:

TABLE 9.—Printing and publishing—value of products in each branch of the industry, by geographic divisions: 1905 and 1900.

DIVISION.	Census.	Total.	Book and job printing. ¹	Newspapers and periodicals.
Continental United States	1905 1900	\$496,061,357 347,054,430	\$239,245,075 171,264,820	\$256,816,282 175,789,610
North Atlantic.....	1905 1900	242,625,110 177,013,357	117,843,418 88,220,781	124,781,692 88,792,526
New England.....	1905 1900	46,764,193 39,555,643	22,924,449 21,007,601	23,839,744 18,548,042
Southern North Atlantic.....	1905 1900	195,860,917 137,457,714	94,918,969 67,213,180	100,941,948 70,244,534
South Atlantic.....	1905 1900	22,169,270 15,939,852	10,361,491 7,459,846	11,807,779 8,480,006
North Central.....	1905 1900	168,968,975 117,866,556	85,135,373 60,817,085	83,833,602 57,049,471
South Central.....	1905 1900	27,202,697 16,853,260	12,140,395 7,159,642	15,062,302 9,693,618
Western.....	1905 1900	34,990,304 19,211,282	13,659,397 7,437,343	21,330,907 11,773,939
Not distributed by states.....	1905 1900	105,001 170,123	105,001 170,123	.....

¹ No separation into exclusive and combination establishments for 1900; but all miscellaneous printing and book and job printing done in newspaper and periodical establishments included with job printing.

Increase.—The increase of approximately 43 per cent reported for the entire industry is shown to be composed of two unequal rates of increase. That reported by book and job printing is decidedly less than the increase for the entire industry, and that by newspapers and periodicals somewhat higher.

This variation prompts inquiry concerning the slower increase shown by book and job printing. Do the percentages indicate a general tendency of newspaper and periodical products to surpass those of book and job printing, or is the variation due to local conditions in one section or in a few sections of the country?

TABLE 10.—Printing and publishing—per cent of increase and per cent distribution of value of products for each branch of the industry, by geographic divisions: 1905 and 1900.

DIVISION.	PER CENT OF INCREASE.			PER CENT DISTRIBUTION.					
	Total.	Book and job printing. ¹	Newspapers and periodicals.	Total.		Book and job printing. ¹		Newspapers and periodicals.	
				1905	1900	1905	1900	1905	1900
Continental United States.....	42.9	39.7	46.1	100.0	100.0	100.0	100.0	100.0	100.0
North Atlantic.....	37.1	33.6	40.5	48.9	51.0	49.3	51.5	48.6	50.5
New England.....	18.2	9.1	28.5	9.4	11.4	9.6	12.3	9.3	10.5
Southern North Atlantic.....	42.5	41.2	43.7	39.5	39.6	39.7	39.2	39.3	40.0
South Atlantic.....	39.1	38.9	39.2	4.5	4.6	4.3	4.4	4.6	4.8
North Central.....	43.4	40.0	46.9	34.1	34.0	35.6	35.5	32.6	32.5
South Central.....	61.4	69.6	55.4	5.5	4.9	5.1	4.2	5.9	5.5
Western.....	32.1	33.7	31.2	7.0	5.5	5.7	4.4	8.3	6.7

¹ No separation into exclusive and combination establishments for 1900; but all miscellaneous printing and book and job printing done in newspaper and periodical establishments included with job printing.

Inspection of the rates for geographic divisions shows that in two divisions, the South Central and the West-

ern, the relative increase in value reported for book and job printing products surpassed that for newspapers and periodicals; in one, the South Atlantic, the two branches of the industry contributed practically the same percentage of increase; and in the two remaining divisions, the North Atlantic and the North Central, the increase in value of products of newspapers exceeded that of book and job printing. Obviously the area of relative decrease in value of products in the latter class, if confined to certain states, must be located within the two divisions last mentioned. Of the two parts of which the North Atlantic division is composed, the Southern North Atlantic showed little variation in the rate of increase, but in New England there was a very marked difference. If New England be omitted, the increase in aggregate value of book and job printing products rises to 44 per cent. In the North Central group, two states prove exceptions to the generous and uniform increase in the value of book and job products in this group, Indiana reporting an increase of but 21.3 per cent and Kansas, 18.2 per cent. To this exception was due the inequality noted in the contributions of this geographic division to the increase in the value of products shown by the two branches. Without the New England states, Indiana, and Kansas, the increase in the value of book and job products was 44.9 per cent, and that in the value of newspaper products 48.3 per cent, a difference of 3.4 per cent.

From the standpoint of absolute figures for the value of products, the two parts of the industry, which were nearly equal in 1900 (the difference being only \$4,500,000 in favor of newspapers and periodicals), show in 1905 the decided difference of \$17,500,000; the excess of 2.6 per cent in 1900 having thus advanced to 7.3 per cent in 1905. The number of states which reported an excess of value of products in job printing over newspapers and periodicals decreased from 11 in 1900 to 9 in 1905, and in all but 2 the excess in the later year was less than that reported in 1900. Thus there was evidently a slight tendency on the part of newspapers and periodicals to surpass book and job printing in the rate of increase recorded during the five-year period, but the analysis above presented indicates that this tendency was so small that if the New England states, Indiana, and Kansas should be omitted the percentage for the remaining states may be regarded as scarcely more than a normal variation.

In connection with the industry as a whole, attention was called to the concentration of two-thirds of the total value of product in 6 states—New York, Illinois, Pennsylvania, Massachusetts, Ohio, and Missouri. If the contributions to the two parts of the industry by the states specified be examined, it appears that these states are also the principal producers in each branch. Their contribution to the value of newspaper and periodical products is 64.4 per cent, a proportion slightly less than that shown for the entire industry,

but for book and job printing their proportion is 69 per cent.

Concentration in cities.—It is not sufficient, however, to confine analysis of the proportion contributed by the states which were largest producers in both branches of the industry, for it will be observed from such analysis that in the 6 states specified are located 5 of the 6 cities having 500,000 or more inhabitants. If, therefore, the book and job and newspaper products of the 6 cities having a population in 1900 in excess of 500,000 be combined, a noteworthy concentration of product in these urban centers is disclosed.

The 6 cities specified contributed in 1905 almost one-half of the entire value of products of the industry, slightly more than one-half of the products of book and job printing, and somewhat less than one-half of the products of newspapers and periodicals. In the latter item doubtless appears the influence of the country newspaper, which tends toward the widest possible diffusion of value of products, but is not able to overcome the volume of business possessed by the great metropolitan publications.

It is of considerable significance, however, that all the percentages presented in Table 11 show declines from 1900 to 1905, suggesting that the concentration of production secured by the 6 cities is not being fully maintained. Curiously enough, the cities are yielding more rapidly in the book and job printing branch than in the less important proportion which they possess of newspaper and periodical product.

When the figures for individual cities are considered it will be found that the value of products contributed

by New York was more than double that of the next largest producer—Chicago—and amounted to not quite one-fourth of the entire product of the industry, the proportion for the two parts being almost the same. The greatest variation in respect to the branches of the industry was shown by Chicago, which contributed 14 per cent of the aggregate value of book and job products and one-half that proportion to the aggregate value of newspaper and periodical products.

TABLE 11.—*Printing and publishing—value of products for cities having at least 500,000 inhabitants: 1905 and 1900.*

CITY.	Census.	VALUE OF PRODUCTS.		
		Total.	Book and job printing.	Newspapers and periodicals.
Continental United States.	1905	\$496,061,357	\$186,759,503	\$309,301,854
	1900	347,054,430	124,070,861	222,983,569
Total for 6 cities	1905	233,485,678	100,713,121	132,772,557
	1900	166,245,135	69,728,436	96,516,699
Per cent of aggregate..	1905	47.1	53.9	42.9
	1900	47.9	56.2	43.3
New York, N. Y.	1905	114,715,988	43,806,389	70,909,599
	1900	77,882,237	26,484,933	51,397,304
Chicago, Ill.	1905	47,797,952	26,200,564	21,597,388
	1900	32,531,445	18,536,364	13,995,081
Philadelphia, Pa.	1905	30,488,799	13,964,080	16,524,719
	1900	23,143,580	10,066,740	13,076,840
St. Louis, Mo.	1905	15,176,019	7,705,160	7,470,859
	1900	9,816,455	4,420,147	5,396,308
Boston, Mass.	1905	20,517,865	6,872,366	13,645,499
	1900	18,673,861	8,183,215	10,490,646
Baltimore, Md.	1905	4,789,055	2,164,562	2,624,493
	1900	4,197,557	2,037,037	2,160,520

BOOK AND JOB PRINTING.

The products of the book and job printing branch of the industry are contributed by two classes of establishments—those devoted exclusively to such products and those which produce miscellaneous printing, and also newspapers and periodicals. The latter class, for convenience of reference, has been termed “combination establishments.” Toward the total value of products reported by such establishments, book and job printing contributes a comparatively small share, much the greater part being derived from newspapers and periodicals. This fact indicates that establishments of this class are maintained principally for the production of newspapers and periodicals, and that book and job printing is frequently but an incidental product. Since no separation of the items can be secured except for value of products, this class of establishments is included under newspapers and periodicals, with which they are unquestionably identified.

No separation of book printing as distinguished from job printing has thus far been made by the Census. It is hoped that at future censuses some separation of these classes of products can be made, and also that it may be found practicable to present statistics of books by total number published, and by character, as is now

done in connection with the circulation of newspapers and periodicals.

Heretofore it has been the practice of the Census to include under the general head of newspapers and periodicals all the product of publishing establishments which issue one or more periodicals regardless of the proportion of value of products contributed by each branch of the business. The value of products of such establishments, therefore, appears under newspapers and periodicals, while the value of products of publishing houses having no periodicals is placed under book and job printing. It is evident that some such rule for classification has been necessary. The influence of this arrangement has appeared only in increasing the book product contributed by the newspaper and periodical class and does not affect the more important conclusions reached in this report.

Exclusive establishments.—A discussion of book and job printing, as distinguished from other branches of the industry, necessarily deals first and principally with exclusive establishments, since for those only could detailed information be secured. In this class of establishments changes of some significance occurred from 1900 to 1905.

TABLE 12.—BOOK AND JOB PRINTING¹—COMPARATIVE SUMMARY, WITH PER CENT OF INCREASE: 1880 TO 1905.

	CENSUS.				PER CENT OF INCREASE.		
	1905	1900	1890	1880	1900 to 1905	1890 to 1900	1880 to 1890
Number of establishments.....	8,350	7,006	4,204	3,468	19.7	66.7	21.2
Capital.....	\$145,502,655	\$100,072,934	\$69,117,560	\$63,003,704	45.4	44.8	9.7
Salaries officials, clerks, etc., number.....	16,188	10,220	8,271	(²)	58.4	23.6	.....
Salaries.....	\$15,908,871	\$9,074,928	\$8,495,583	(³)	75.3	6.8	.....
Wage-earners, average number.....	88,323	68,388	50,861	58,506	29.1	34.5	413.1
Total wages.....	\$49,061,030	\$33,916,903	\$27,985,960	\$30,541,657	44.7	21.2	18.4
Men 16 years and over, number.....	65,748	52,311	40,010	45,890	25.7	30.7	412.8
Wages.....	\$41,833,749	\$29,326,988	\$24,350,368	(⁴)	42.6	20.4	.....
Women 16 years and over, number.....	20,086	13,950	9,439	6,777	44.0	47.8	39.3
Wages.....	\$6,755,382	\$4,249,852	\$3,381,854	(⁵)	59.0	25.7	.....
Children under 16 years, number.....	2,489	2,127	1,412	5,839	17.0	50.6	475.8
Wages.....	\$471,899	\$340,063	\$253,738	(⁶)	38.8	34.0	.....
Miscellaneous expenses.....	\$34,831,172	\$17,353,229	\$11,244,729	(⁶)	100.7	54.3	.....
Cost of materials used.....	\$53,116,330	\$36,641,256	\$29,903,593	\$32,660,395	45.0	22.5	48.4
Products, total value.....	\$186,750,503	\$124,070,861	\$95,592,765	\$90,979,841	50.5	29.8	5.1
Book and job printing products.....	\$155,257,396	.....	.....	.....	.....	.....	.....
Sheet music and books of music.....	\$4,544,724	.....	.....	.....	.....	.....	.....
All other products.....	\$26,957,383	.....	.....	.....	.....	.....	.....

¹ Includes music.² Includes proprietors and firm members, with their salaries; number only reported in 1900 and 1905, but not included in this table.³ Not reported separately.⁴ Decrease.⁵ Not reported.

The increase in number of establishments, in capital, and in value of products was very moderate from 1880 to 1890; it was decidedly larger as to number of establishments and capital, and somewhat larger as to value of products, from 1890 to 1900; but from 1900 to 1905 the increase in capital and value of products became very marked. Indeed, for all the items appearing in Table 12, except number of establishments and number of children at work, the increase was almost as great during the five-year period from 1900 to 1905 as during the previous decade, and in many cases double or more than double.

The absolute increase in value of products shown in 1905 was unprecedented. From 1880 to 1890 it approximated \$4,500,000; from 1890 to 1900, \$28,000,000; and during the half period from 1900 to 1905, \$62,000,000. At the rate of increase thus established, the value of products in 1910 will be double that reported in 1900.

The great advance in value of products of book and job printing during the five years from 1900 to 1905 is due largely to perfectly natural causes—the leading factor being the general prosperity in which the printer has fully shared.

Without using specific cases for purposes of illustration, it is difficult to appreciate the magnitude of many printing orders, editions of hundreds of thousands of pamphlets and even of several millions being not infrequently produced by the larger job establishments in New York, Chicago, and other centers of trade. The increase in manufacturing operations and variety of product, often the result of consolidation of plants, has increased the size of many trade catalogues, so that in a number of instances such publications have become as large and as substantially bound as Webster's Dictionary. The general prosperity, especially that of remote country districts, has led

in the last few years to the multiplication of concerns devoted to what is known as "mail order business." The principal establishments of this class are located in Chicago, and conduct prodigious operations—in some cases securing sales amounting to more than \$50,000,000 per annum—exclusively by the use of catalogues, leaflets, and circulars. It is not uncommon for such concerns to issue editions of a million copies of catalogues containing hundreds of pages. In such cases the printer has become the actual salesman.

There is everywhere, indeed, an increasing tendency to utilize booklets, circulars, and catalogues instead of samples in various lines of business. This change is most important for the printer and is made possible by the remarkable perfection of illustration, by which a rug, a piece of jewelry, a pearl-handled knife, or any other commodity can be produced in colors with such striking exactness as to convey a perfect impression of the article portrayed.

Thus, over and beyond commercial reasons there is another: Photography and photoengraving have become the handmaidens of printing, and the liberal use of these two allied arts has brought extensive patronage from interests hitherto unresponsive.

While the printed page has long formed the principal promoter of business, the printer has now opened new possibilities of trade for the manufacturer and merchant by enabling them to place before every possible customer reproductions of wares almost as tempting as the articles themselves.

The era of the cheap woodcut and of the illustration makeshift has given place to increasingly tasteful products, until the designer's art has been taxed to the utmost to supply artistic creations. These are reproduced in such perfection as to excite frequently the liveliest admiration. So great, indeed, is the cost of the illustra-

tions employed by many large manufacturers and others, in commending their interests to the public that the mere printing—the cost of composition, presswork, paper, and accessories—becomes a trifle in comparison. Thus photography and photoengraving (which is but the medium for transferring the photograph to the printed page) not only tempt to the use of printing for an infinite variety of purposes, but also to more expensive printed matter.

As an illustration of the use of job printing in connection with certain everyday requirements the writer has made an estimate of the volume of printing used for three public utilities—the trolley, the telephone, and the city directory. Although not gathered as a part of census returns and necessarily approximations such figures clearly suggest the magnitude of operations in the plainer grades of modern job printing.

The transfer system requires about 3,000,000,000 transfer slips annually for the trolley systems of the United States; this represents approximately 30,000,000 sheets of paper.

The telephone, now extended to all parts of the United States, including the remotest rural districts, adds to the usual requirements of company blanks and forms the subscribers' book, which is an indispensable adjunct of each company. Of these books, the 3 cities having more than 1,000,000 inhabitants—New York, Chicago, and Philadelphia—required approximately 1,400,000 copies in 1905, containing more than 2,500,000 pounds of paper and requiring presswork aggregating nearly 42,000,000 impressions, or the work of one cylinder press turning out 10,000 impressions per day, for fourteen years of working days.

The great number of telephone books required by the 3 cities mentioned of course formed but a portion of the entire requirement of the telephone industry. A computation based upon examination of the books published for the larger cities of the Union makes it evident that the aggregate requirement in terms of 24 x 38 sheets was not less than 265,000,000 press impressions.

The city directory is another source of large and increasing revenue to the printer. The volume of book printing required to produce the city directories of the United States is now surprisingly great. The average size of directories issued for 161 cities having a population of more than 25,000 was 1,064 pages, and the aggregate number of pages in the entire 161 directories issued was 171,339. The total number of sheets of paper upon the 24 x 38 basis required for the directories in all the cities having a population of more than 25,000 doubtless approximated 8,000,000 in 1905. It must be remembered, however, that these were by no means all the directories required. In all, 792 were issued for cities, towns, counties, and states. Deducting those for the large cities mentioned, there remain 631, a group of books large in number but much smaller in size and

edition than those for the group of large cities, requiring in the aggregate for paper, composition, and presswork about half as much as that specified for the 161 cities. It is probably not an exaggeration to say that there is an annual directory requirement in the United States for 12,000,000 sheets of book paper, 24 x 38.

These three important requirements therefore used approximately the following number of printed sheets:

Telephone books	133,000,000
Street car transfers	30,000,000
City directories	12,000,000
Total	175,000,000

What this gigantic total means, printers are best able to judge. Reduced to reams the result is 350,000, representing, on a basis of 40 lbs. per ream, 14,000,000 lbs., or enough flat paper to fill more than 400 freight cars. Moreover, as every sheet except the transfer stock is printed on both sides, the presswork required mounts up to 320,000,000 impressions.

It is not surprising that the returns indicate unexampled prosperity. From the nature of the work, however, much the greater part of the exacting business thus outlined goes to the establishments devoted exclusively to book and job printing. This fact is clearly indicated by the comparative increase in value of products of the two classes of establishments.

TABLE 13.—Book and job printing—number of establishments, capital, salaries and wages, and value of products, by geographic divisions: 1880 to 1905.

DIVISION.	Census.	Number of establishments.	Capital.	Salaries and wages.	Value of products.
Continental United States.	1905	8,389	\$145,502,655	\$64,969,901	\$186,759,503
	1900	7,006	100,072,934	42,991,831	124,070,861
	1890	4,204	69,117,560	36,481,543	95,592,765
	1880	3,468	63,003,704	30,541,657	90,979,341
North Atlantic	1905	3,885	78,147,089	31,203,658	92,774,399
	1900	3,361	54,336,570	21,670,075	63,743,536
	1890	2,200	39,833,632	18,863,892	49,459,043
	1880	1,654	36,513,653	15,755,053	51,074,908
New England	1905	1,043	14,572,648	6,287,149	17,452,785
	1900	991	12,589,118	5,086,757	16,231,096
	1890	646	7,411,968	3,550,236	9,715,714
	1880	478	6,657,869	3,943,373	11,735,120
Southern North Atlantic.	1905	2,842	63,574,441	24,916,509	75,321,674
	1900	2,370	41,747,452	16,583,318	47,512,490
	1890	1,554	32,421,664	15,313,656	39,743,329
	1880	1,176	29,855,784	11,811,680	39,339,788
South Atlantic	1905	554	6,629,163	2,753,285	8,045,240
	1900	486	5,050,981	2,016,302	5,697,230
	1890	288	3,618,955	3,634,236	6,904,914
	1880	228	4,260,400	2,638,918	6,272,413
North Central	1905	2,790	47,497,734	23,964,440	67,735,000
	1900	2,312	33,466,549	15,709,759	44,855,809
	1890	1,282	20,970,895	11,247,163	32,701,823
	1880	1,202	16,918,086	9,023,226	26,031,533
South Central	1905	499	6,175,770	3,243,215	8,103,867
	1900	397	3,500,331	1,706,560	4,626,624
	1890	217	2,550,952	1,330,588	3,918,767
	1880	178	2,981,600	1,464,510	3,659,472
Western	1905	644	6,985,769	3,793,195	9,945,396
	1900	430	3,564,383	1,832,905	4,919,699
	1890	198	2,011,162	1,346,255	2,950,491
	1880	206	2,329,965	1,659,960	3,931,015
Not distributed by states.	1905	17	67,130	12,108	105,001
	1900	20	154,120	56,230	170,123
	1890	19	131,964	59,409	207,741

When an analysis of number of establishments, capital, salaries and wages, and value of products is made for the geographic divisions, based upon the returns for states and territories,¹ the general tendency to increase at the rate of 100 per cent on a decade basis as the total for the United States appears to exist in each of the geographic divisions. To a certain extent the South Atlantic division is an exception, for although it reported an increase during the five-year period of 41.2 per cent in the value of products, in capital it showed an increase of only about one-third. It should be observed that in this geographic group the total amount reported as salaries and wages in 1890 was much greater than that reported in 1905. It is possible, however, that the returns in 1890 may have been erroneous in some particulars, since those of 1900 and 1905 are consistent.

The increase in number of establishments was least in the New England states, where a practically stationary condition existed, and was greatest in the Western group, in which an advance of practically one-half was recorded. The wage item here presented is the combination of all payment for compensation, whether salaries or wages. The proportion of increase in the amount paid to the employees for each geographic division corresponds roughly with the increase in value of products, suggesting that in the printing industry the producers themselves are securing a proportionate share of the entire receipts.

TABLE 14.—Book and job printing¹—per cent of increase in number of establishments, capital, and value of products, by geographic divisions: 1880 to 1905.

DIVISION.	NUMBER OF ESTABLISHMENTS.			CAPITAL.			VALUE OF PRODUCTS.		
	1900 to 1905	1890 to 1900	1880 to 1900	1900 to 1905	1890 to 1900	1880 to 1900	1900 to 1905	1890 to 1900	1880 to 1900
Continental United States.....	19.7	66.7	21.2	45.4	44.8	9.7	50.5	29.8	5.1
North Atlantic.....	15.6	52.8	33.0	43.8	36.4	9.1	45.5	28.9	*3.2
New England.....	5.2	53.4	35.1	15.8	69.8	11.3	7.5	67.1	*17.2
Southern North Atlantic.....	19.9	52.5	32.1	52.3	28.8	8.6	58.5	19.5	1.0
South Atlantic.....	14.0	68.8	26.3	31.2	39.6	*15.1	41.2	*17.5	10.1
North Central.....	20.7	80.3	6.7	41.9	59.6	24.0	51.1	37.2	25.6
South Central.....	25.7	82.9	21.9	76.4	37.2	*14.4	72.9	39.1	*8.2
Western.....	49.8	117.2	*3.9	96.0	77.2	*13.7	102.1	66.7	*24.9

¹ Includes music.

* Decrease.

In percentage of increase from 1900 to 1905 in number of establishments, capital, and value of products, the Atlantic seaboard states were last when compared with other geographic divisions—the sole exception being that the rate of increase in capital was slightly higher in the North Atlantic group than in the North Central. The foregoing table, however, establishes the fact that

from 1900 to 1905 percentage of increase, as contrasted with absolute increase, favored the states not regarded as centers of job printing production. This fact possibly reflects the gradual extension of exclusively job printing establishments.

TABLE 15.—Book and job printing—per cent of increase in number of establishments, capital, and value of products, by states and territories: 1890 to 1905.¹

STATE OR TERRITORY.	NUMBER OF ESTABLISHMENTS.		CAPITAL.		VALUE OF PRODUCTS.	
	1900 to 1905	1890 to 1900	1900 to 1905	1890 to 1900	1900 to 1905	1890 to 1900
Continental United States.....	19.7	66.7	45.4	44.8	50.5	29.8
Alabama.....	42.5	53.8	72.7	17.0	69.1	1.9
Arkansas.....	38.5	85.7	104.8	142.5	48.0	121.3
California.....	51.3	91.7	113.6	49.7	110.1	48.5
Colorado.....	36.4	135.7	42.3	244.6	55.7	140.9
Connecticut.....	15.7	71.9	*1.9	44.9	15.8	40.2
Delaware.....	(*)	18.2	11.7	*5.5	37.7	*5.8
District of Columbia.....	5.6	41.2	24.8	*33.8	113.5	*79.2
Florida.....	114.3	366.7	57.1	349.7	116.6	181.6
Georgia.....	38.9	68.8	51.0	32.0	70.0	10.3
Idaho.....	100.0	.....	211.8	.....	186.5	.....
Illinois.....	20.3	91.5	32.1	58.0	44.0	36.2
Indiana.....	16.8	112.3	125.7	89.5	66.6	120.3
Iowa.....	17.4	105.4	31.9	67.5	34.9	65.1
Kansas.....	24.2	69.2	16.4	14.5	22.1	21.7
Kentucky.....	22.0	46.4	119.1	93.8	89.5	118.7
Louisiana.....	8.8	54.1	39.6	67.8	85.1	32.4
Maine.....	15.2	119.4	51.9	104.5	51.1	136.9
Maryland.....	*9.0	52.9	14.9	84.7	0.9	92.9
Massachusetts.....	1.2	40.4	16.6	77.1	2.2	70.5
Michigan.....	22.9	105.1	16.7	160.0	67.6	57.7
Minnesota.....	23.4	76.8	108.0	14.1	80.2	26.9
Mississippi.....	31.2	300.0	80.4	605.5	*28.7	1,551.4
Missouri.....	10.8	57.1	42.7	33.6	61.7	20.0
Montana.....	*18.2	.....	52.2	.....	70.9	.....
Nebraska.....	12.9	100.0	46.2	69.4	44.8	60.8
New Hampshire.....	5.8	48.6	59.7	7.2	82.5	17.0
New Jersey.....	26.8	140.8	94.8	147.5	77.5	84.0
New York.....	21.2	45.9	65.6	39.7	61.9	30.3
North Carolina.....	44.7	192.3	83.7	64.6	84.8	160.7
North Dakota.....	11.1	.....	45.9	.....	19.8	.....
Ohio.....	27.9	58.2	40.9	67.4	43.8	31.0
Oklahoma.....	300.0	.....	1,734.8	.....	1,884.9	.....
Oregon.....	26.2	121.1	77.2	54.0	114.6	39.7
Pennsylvania.....	15.8	52.1	24.0	7.6	47.5	*4.8
Rhode Island.....	9.7	80.0	32.3	65.9	33.3	83.2
South Carolina.....	4.5	57.1	5.6	*11.4	*30.5	1.1
South Dakota.....	*12.5	.....	77.1	.....	94.7	.....
Tennessee.....	14.9	116.1	*0.9	40.7	34.0	46.2
Texas.....	16.9	110.7	135.3	*8.6	99.7	22.0
Utah.....	50.0	80.0	76.6	4.6	87.7	24.1
Vermont.....	*2.4	78.3	*1.6	66.7	2.9	38.8
Virginia.....	19.8	79.2	29.7	153.1	43.5	75.2
Washington.....	74.1	190.0	132.9	124.2	131.9	92.0
West Virginia.....	19.4	158.3	182.9	59.5	128.0	91.6
Wisconsin.....	28.4	50.0	68.9	54.8	106.1	25.9

¹ Percentages are based on data given by states in Table 70; hence the comparisons do not include data for those establishments shown in Table 70 as "not distributed by states."

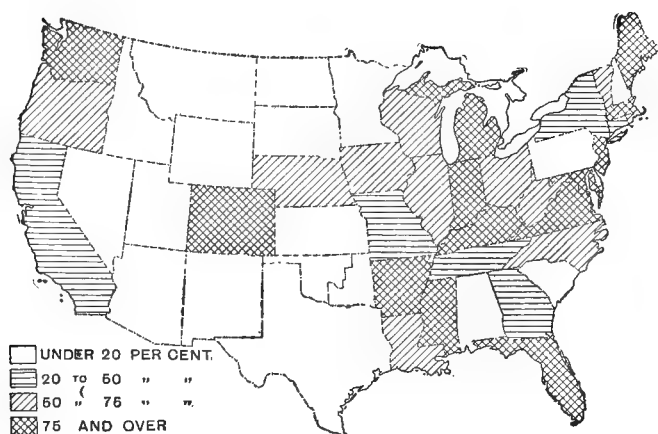
* Decrease.

* Less than one-tenth of 1 per cent.

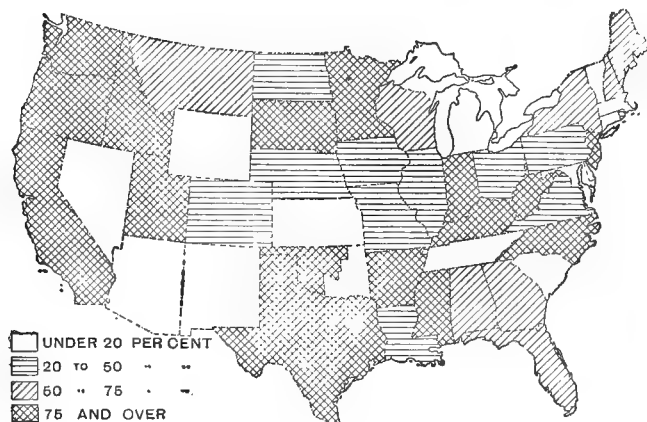
The noteworthy momentum which has been attained in job printing during the five-year period from 1900 to 1905, as compared with previous decades, is illustrated by the fact that 24 states and territories showed an increase in capital exceeding 50 per cent during the ten years from 1890 to 1900, and the same number showed a like increase from 1900 to 1905 during half that length of time. Furthermore, if the standard of increase be advanced, it appears that 9 states doubled in capital from 1890 to 1900, and during the half decade from 1900 to 1905 10 showed at least 100 per cent advance.

¹ Table 70, page 760.

MAP 10.—States showing specified per cent of increase in capital:
1890 to 1900.



MAP 11.—States showing specified per cent of increase in capital:
1900 to 1905.

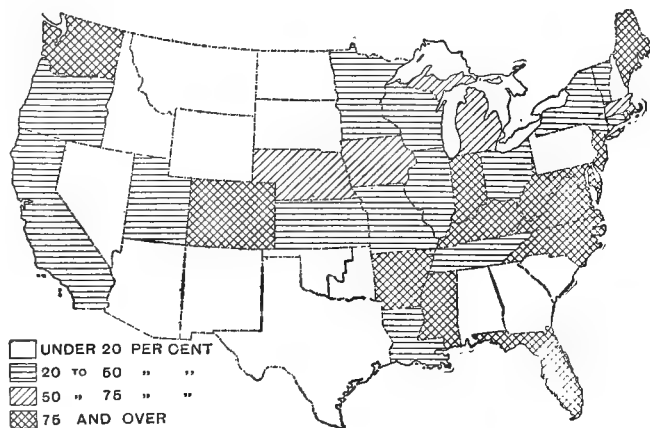


In value of products a similar condition is revealed, since most of the states and territories show an increase, during the five-year period, so great as to be, upon a decade basis, approximately double, or more than double the increase shown from 1890 to 1900. The number of states and territories which doubled or more than doubled in value of products from 1890 to 1900 was 8, and 9 states showed a similar increase during the half decade from 1900 to 1905.

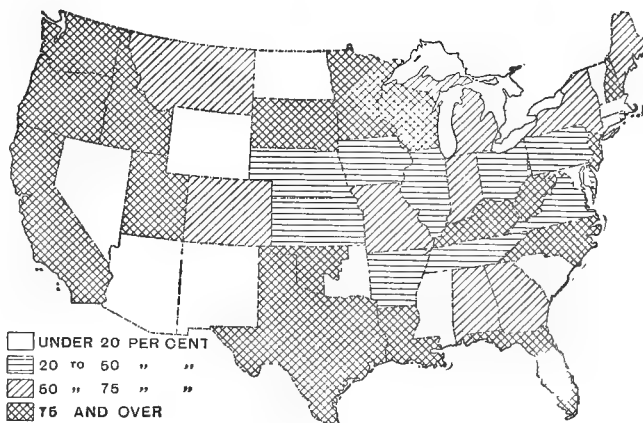
The statistics of capital secured by the Census must always be to some extent unsatisfactory. Their principal value is found in the comparison of the returns of one census with those of another at which the methods of compiling capital were the same. In 1900, for example, it appears that the average capital of each establishment devoted exclusively to book and job printing was \$14,284, while in 1905 the average capital proved to be \$17,344, an increase of approximately one-fifth in the five-year period covered. At the same time average value of products advanced from \$17,709 in 1900 to \$22,262 in 1905, an increase of slightly more than one-fourth. It will be recalled that the average value of products for the entire printing industry was shown in Table 6 to be \$18,775 in 1905, an advance of more than \$3,000 per establishment in the five-year

period. Thus it is evident that in establishments devoted to book and job printing exclusively, the average value of products was considerably larger in 1905 than the average value of products per establishment for the industry.

MAP 12.—States showing specified per cent of increase in value of
products: 1890 to 1900.



MAP 13.—States showing specified per cent of increase in value of
products: 1900 to 1905.



These interesting changes in connection with averages for the entire branch of the industry suggest consideration of averages by geographic divisions.

TABLE 16.—Book and job printing—average capital, salaries and wages, and value of products per establishment, by geographic divisions: 1905 and 1900.¹

DIVISION.	CAPITAL.		SALARIES AND WAGES.		VALUE OF PRODUCTS.	
	1905	1900	1905	1900	1905	1900
Continental United States.....	\$17,344	\$14,284	\$7,745	\$6,136	\$22,262	\$17,709
North Atlantic.....	20,115	16,167	8,032	6,448	23,880	18,966
New England.....	13,972	12,703	6,028	5,133	16,733	16,379
Southern North Atlantic.....	22,370	17,615	8,767	6,997	26,503	20,047
South Atlantic.....	11,966	10,393	4,970	4,149	14,522	11,723
North Central.....	17,024	14,475	8,589	6,795	24,296	19,400
South Central.....	12,376	8,817	6,499	4,299	16,240	11,805
Western.....	10,847	8,289	5,890	4,263	15,443	11,442

¹This table does not include the statistics for states included under "not distributed by states" in Table 70.

In 1905 two divisions reported an average value of products in exclusive book and job printing establishments greater than the average for the entire United States. It is an interesting fact that in this branch of the industry Illinois reported much the largest average value per establishment (\$32,117), while in the industry as a whole and in combination establishments New York was far in advance of all other states.

Concentration in cities.—The establishments devoted to the production of book and job printing exclusively are generally found in cities. With some exceptions their importance varies in proportion to the size of the community.

This characteristic is in marked contrast to the tendency shown by other industries. The size of the community in which a plant is located usually has no significance whatever, because the product generally bears no relation to local conditions or requirements. Nearly all large plants produce goods required by various communities or interests, scattered all over the country and perhaps all over the world; hence the location of the plant may have been a matter of in-

dividual preference on the part of the owners, or may have been determined by proximity to power, labor, or raw material. In the job printing industry such conditions exist only to a limited and exceptional degree. Plants are established primarily to produce the printing required by the communities in which they are located, and although increasing reputation draws outside patronage, this class of business is very small when compared with a similar class in other industries, but it is apparently on the increase. Within the fifteen years which elapsed from 1890 to 1905 a number of establishments came into existence and attained reputation and prosperity as specialists in artistic or other classes of printing, though located in small communities which often lacked the best transportation facilities. Plants located in the large cities, such as New York, Boston, Philadelphia, and Chicago, are supposed by the public to possess facilities for large or exacting orders not to be found in smaller communities, and are patronized accordingly. This characteristic of the job printing industry makes it important to consider in some detail the product of the larger cities.

TABLE 17.—BOOK AND JOB PRINTING—NUMBER OF ESTABLISHMENTS, CAPITAL, AND TOTAL AND AVERAGE VALUE OF PRODUCTS, FOR CITIES HAVING AT LEAST 50,000 INHABITANTS, AND FOR THE REMAINDER OF THE COUNTRY: 1905 AND 1900.

LOCALITY.	Census.	ESTABLISHMENTS.		CAPITAL.		VALUE OF PRODUCTS.		Average value of products per establishment.
		Number.	Per cent of total.	Amount.	Per cent of total.	Amount.	Per cent of total.	
Cities of 50,000 or over.....	1905	5,458	65.1	\$117,459,952	80.7	\$154,489,422	82.7	\$28,305
	1900	4,686	66.9	81,985,910	81.9	105,327,985	84.9	22,477
Remainder of the country.....	1905	2,931	34.9	28,042,703	19.3	32,270,081	17.3	11,010
	1900	2,320	33.1	18,087,024	18.1	18,742,876	15.1	8,079

The proportion of the total value of products of exclusive book and job printing establishments furnished by cities having 50,000 or more inhabitants offers interesting confirmation of the statement, made in the discussion of products by states, that volume of products in this industry follows centers of population. The 78 cities which contained 50,000 or more inhabitants contributed in 1905 more than four-fifths of the total value of products, practically the same proportion of the capital, and two-thirds of the number of establishments—but it should be observed that in each instance these cities contributed somewhat less, proportionately, in 1905 than in 1900. It has already been pointed out that the establishments in small or rural communities are almost exclusively of the class termed combination establishments; it seems probable, therefore, that the figures given in the above table under the head "remainder of the country" are for the smaller cities, having a population of from 10,000 to 50,000. The analysis presented in the table suggests a proportionately more rapid growth of the book and job printing industry in these intermediate cities than in those

having a population in excess of 50,000. The changes in favor of the remainder of the country, whether urban or rural, as opposed to the cities of 50,000 or over have been accomplished in the face of the fact that the absolute increase in the number of establishments in the city group was somewhat greater than that reported for the rest of the country, and also that the increase in the average value of products per establishment in cities is more than double that of the average establishment elsewhere.

Inspection of the detailed table¹ relating to book and job printing for cities having a population in 1900 of 50,000 or over, indicates marked differences in the industry reported for cities apparently similar in location and population. A decrease in capital is reported by 10 cities, located with one exception in the East, and 6, also in the East, report a decrease in value of products. Such increases as appear vary all the way from an unimportant amount to much more than double the amount reported in 1900. In 1905 more than one-sixth

¹ See Table 71, page 766.

of the entire number of cities reported double or more than double the capital reported in 1900, and a slightly smaller number reported double or more than double the value of products, while 11 cities showed a practically stationary condition in value of products. In

general the cities which make the least satisfactory showing are those of New England, while the cities of the West and Southwest show the largest proportionate increases.

TABLE 18.—BOOK AND JOB PRINTING¹—ESTABLISHMENTS, CAPITAL, COST OF MATERIALS, AND VALUE OF PRODUCTS; PER CENT OF TOTAL FOR UNITED STATES FORMED BY TOTAL FOR EACH CLASS OF CITIES; PER CENT OF TOTAL IN CITIES FORMED BY TOTAL FOR EACH CLASS OF CITIES; PER CENT OF INCREASE IN EACH CLASS OF CITIES: 1905 AND 1900.

CLASS OF CITY BY NUMBER OF IN- HABITANTS.	PER CENT POPULATION IN EACH GROUP FORMS OF TOTAL FOR THE UNITED STATES.		NUMBER OF ESTABLISHMENTS.					CAPITAL.					COST OF MATERIALS.					VALUE OF PRODUCTS.				
			Per cent of total in job print- ing estab- lishments.		Per cent which estab- lish- ments in each group form of total for all groups.		Per cent of in- crease in spec- ified cities: 1900 to 1905.	Per cent of total in job print- ing estab- lishments.		Per cent which capital in each group forms of total capital for all groups.		Per cent of in- crease in spec- ified cities: 1900 to 1905.	Per cent of total in job print- ing estab- lishments.		Per cent which cost of materials in each group forms of total cost of materials for all groups.		Per cent of in- crease in spec- ified cities: 1900 to 1905.	Per cent of total in job print- ing estab- lishments.		Per cent which value of products in each group forms of value of products for all groups.		Per cent of in- crease in spec- ified cities: 1900 to 1905.
	1905	1900	1905	1900	1905	1900		1905	1900	1905	1900		1905	1900	1905	1900		1905	1900	1905	1900	
Total.....	22.8	21.7	65.1	66.9	100.0	100.0	16.5	80.7	82.0	100.0	100.0	43.3	82.3	84.1	100.0	100.0	41.9	82.7	84.9	100.0	100.0	46.7
1,000,000 or over...	8.9	8.4	28.0	28.4	43.0	42.5	18.0	43.7	43.2	54.1	52.7	47.1	42.4	41.2	51.5	49.0	48.9	45.0	44.4	54.4	52.3	52.4
500,000 to 1,000,000...	2.2	2.2	6.9	8.5	10.6	12.7	22.9	8.4	10.7	10.4	13.1	14.1	8.8	12.2	10.7	14.5	5.2	8.9	11.8	10.8	13.9	14.4
250,000 to 500,000...	4.0	3.3	10.6	10.2	16.2	15.2	23.8	9.7	9.7	12.1	11.8	46.1	10.9	11.4	13.3	13.6	39.0	10.6	10.3	12.8	12.1	55.3
100,000 to 250,000...	3.8	4.2	11.4	11.4	17.5	17.1	19.3	10.2	8.7	12.7	10.6	72.3	11.4	10.2	13.8	12.2	61.1	10.2	9.9	12.4	11.7	55.8
75,000 to 100,000...	1.8	1.7	4.1	4.2	6.4	6.2	19.7	5.5	6.6	6.8	8.0	20.8	5.8	5.8	7.1	6.8	46.2	5.1	5.3	6.1	6.2	43.8
50,000 to 75,000....	2.1	1.9	4.1	4.2	6.3	6.3	16.9	3.2	3.1	3.9	3.8	48.0	3.0	3.3	3.6	3.9	32.7	2.9	3.2	3.5	3.8	35.0

¹ Includes music.

² Decrease.

The analysis of value of products by separation into that of cities of 50,000 or over, and that of the remainder of the country is continued by a further subdivision into six classes of cities. Attention has been called to the fact that cities of over 50,000 inhabitants contributed in 1905 slightly more than four-fifths of the entire value of products of book and job printing. It appears, however, that the 3 cities having 1,000,000 inhabitants or over, contributed in 1900 more than one-half of the value of the products specified in Table 18, and while the entire group of cities has not quite held its own in value of products compared with the rest of the country, the 3 largest cities have increased the proportion which they contributed to the total. A similar condition exists also in connection with capital, the proportions and changes being approximately the same as those shown for value of products.

COMPARISON OF EXCLUSIVE AND COMBINATION ESTABLISHMENTS.

Of the total value of job printing products, one-fifth was produced in combination establishments, and these, as explained elsewhere, are included with the newspaper and periodical class. Practically one-half of this proportion contributed by combination establishments was produced in the North Atlantic division, and if the product of the North Central division be added, there remains about 4 per cent for the other three geographic divisions. It is clear from the following table that an increasing proportion of the job printing is being produced in exclusive establishments.

This tendency appears to be a recent development, the change being especially noteworthy for the period from 1900 to 1905, while the proportion was practically stationary during the previous decade.

TABLE 19.—Book and job printing—distribution of the value of products contributed by exclusive establishments and those producing also newspapers and periodicals, by geographic divisions: 1890 to 1905.

DIVISION.	EXCLUSIVE ESTABLISHMENTS.			NEWSPAPER AND PERIODICAL ESTABLISHMENTS.		
	1905 ¹	1900 ¹	1890 ¹	1905	1900	1890
PER CENT OF TOTAL.						
Continental United States.....	79.7	74.8	74.4	20.3	25.2	25.6
North Atlantic.....	39.6	38.4	38.6	9.7	13.7	11.5
New England.....	7.4	9.8	7.6	2.1	2.6	3.3
Southern North Atlantic.....	32.2	28.6	31.0	7.6	11.1	8.2
South Atlantic.....	3.4	3.5	5.4	0.9	0.9	1.1
North Central.....	28.9	27.1	25.5	6.6	8.1	9.7
South Central.....	3.5	2.8	2.6	1.6	1.2	1.7
Western.....	4.3	3.0	2.3	1.5	1.3	1.6
PER CENT DISTRIBUTION.						
Continental United States.....	100.0	100.0	100.0	100.0	100.0	100.0
North Atlantic.....	49.7	51.4	51.8	48.0	54.3	45.1
New England.....	9.4	13.1	10.2	10.2	10.1	12.8
Southern North Atlantic.....	40.3	38.3	41.6	37.8	44.2	32.3
South Atlantic.....	4.3	4.6	7.2	4.6	3.6	4.8
North Central.....	36.3	36.2	34.2	32.4	32.1	38.0
South Central.....	4.3	3.8	3.5	7.7	4.8	6.5
Western.....	5.3	4.0	3.1	7.2	5.1	6.1

¹ Does not include the statistics for states included under "not distributed by states" in Table 70.

If the distribution of products of each class of establishments by geographic divisions be considered inde-

pendently, it appears that the proportion of products of both exclusive and combination establishments in the North Atlantic division decreased from 1900 to 1905, so that this division, which at the earlier census contributed more than one-half of the entire output of each class, in the later year contributed slightly less than one-half of each. Upon further inspection of the table it appears that the New England group of states is responsible for this decrease in the proportion which the North Atlantic division contributed to the total product of the exclusive establishments.

The average value of job printing is over six times higher in exclusive establishments than in combination establishments.

TABLE 20.—*Book and job printing—average value of products per establishment, by class of establishment in which produced, by geographic divisions: 1905.*¹

DIVISION.	AVERAGE VALUE OF BOOK AND JOB PRODUCTS IN—	
	Exclusive establishments.	Newspaper and periodical establishments.
Continental United States.....	\$22,262	\$3,509
North Atlantic.....	23,880	9,515
New England.....	16,733	10,165
Southern North Atlantic.....	26,503	9,353
South Atlantic.....	14,522	2,349
North Central.....	24,296	2,240
South Central.....	16,240	1,841
Western.....	15,443	2,579

¹This table does not include the statistics for states included under "not distributed by states" in Table 70.

The average capital for establishments producing both job printing and newspapers and periodicals is not available. The average value of total products for such establishments can be given for the census of 1905 only. For that year it was \$9,206; of this, only \$3,509 was contributed by job printing, clearly indicating the limited and scattered character of the job printing produced in the average combination establishment. The distinction between the two classes of establishments here so clearly shown suggests that the character of the community is an important factor in the volume of the job printing business. Combination establishments are almost exclusively located in small or distinctly rural communities.

Music.—Music establishments are of so little relative importance that they have been included with job printing. There has been, however, a gratifying increase in a number of the leading items.

TABLE 21.—*Music—comparative summary: 1890 to 1905.*

	1905	1900	1890
Number of establishments.....	145	87	71
Capital.....	\$3,487,017	\$2,313,966	\$1,816,205
Salaried officials, clerks, etc., number.....	739	314	239
Salaries.....	\$509,144	\$244,515	\$224,799
Wage-earners, average number.....	577	778	462
Wages.....	\$340,176	\$375,202	\$223,783
Miscellaneous expenses.....	\$1,715,363	\$663,097	\$362,117
Cost of materials used.....	\$541,220	\$449,674	\$401,415
Value of products, including custom work and repairing.....	\$4,147,783	\$2,272,385	\$1,683,333

In the fifteen years from 1890 to 1905 the number of establishments and the capital have practically doubled, and the value of products has nearly tripled. The increase in the three items from 1900 to 1905 is more than double the increase for the preceding decade.

NEWSPAPERS AND PERIODICALS.

Three-fifths of the total value of products reported for printing and publishing were furnished by newspapers and periodicals, which, from the material point of view, therefore constitute the more important branch of the industry.

The products of newspaper and periodical establishments include several subdivisions, because of the fact, already pointed out in connection with job printing, that there are two general classes of establishments—exclusive establishments, producing newspapers and periodicals only, and combination establishments, producing also book and job printing and in some cases music and other printing products.

As no separation can be made for any item reported for the latter class of establishments except value of products, it is clear that the establishments themselves must be grouped under one or the other branch of the industry. Accordingly they have been included under newspapers and periodicals, since the value of newspaper products reported by such offices forms much the greater part of their total products. The contribution of this class of establishments to job printing has already been noticed in the preceding chapter; interest therefore centers in the two distinctively newspaper and periodical products—advertising and subscriptions and sales.

TABLE 22.—NEWSPAPERS AND PERIODICALS—COMPARATIVE SUMMARY, WITH PER CENT OF INCREASE:
1880 TO 1905.

	CENSUS.				PER CENT OF INCREASE.		
	1905	1900	1890	1880	1900 to 1905	1890 to 1900	1880 to 1890
Number of establishments.....	18,033	15,305	12,362	(¹)	17.8	23.8	.....
Number of publications reporting.....	21,394	18,226	14,901	10,132	17.4	22.3	47.1
Capital.....	\$239,505,949	\$192,443,708	\$126,269,885	(¹)	24.5	52.4	.....
Salaried officials, clerks, etc., number.....	48,781	27,579	20,120	(²)	76.9	37.1	.....
Salaries.....	\$47,127,711	\$27,015,791	\$17,777,173	(³)	74.4	52.0	.....
Wage-earners, average number.....	96,857	94,604	85,975	71,615	2.4	10.0	20.1
Total wages.....	\$59,821,488	\$50,333,051	\$50,824,359	\$28,559,336	18.9	41.0	78.0
Men 16 years and over.....	76,807	73,653	70,424	(⁴)	4.3	4.6	.....
Wages.....	\$53,910,791	\$44,961,533	\$46,960,047	(⁴)	19.9	4.3	.....
Women 16 years and over.....	17,528	14,815	9,587	(⁴)	18.3	54.5	.....
Wages.....	\$5,512,061	\$4,628,221	\$3,222,192	(⁴)	19.1	43.6	.....
Children under 16 years.....	2,522	6,136	5,964	(⁴)	458.9	2.9	.....
Wages.....	\$398,636	\$743,297	\$642,120	(⁴)	46.4	15.8	.....
Miscellaneous expenses.....	\$67,635,238	\$38,544,642	\$35,727,039	(¹)	75.5	7.9	.....
Materials used, total cost.....	\$70,354,474	\$50,214,904	\$38,955,322	(¹)	40.1	28.9	.....
Paper for newspapers and periodicals, pounds.....	1,821,629,830	1,078,237,670	552,876,161	189,145,048	68.9	95.0	192.3
Products, total value.....	\$309,301,854	\$222,983,569	\$179,859,750	\$89,009,074	38.7	24.0	102.1
Newspaper products.....	\$256,816,282	\$175,789,610	\$143,586,448	\$89,009,074	46.1	22.4	61.3
Advertising.....	\$145,517,591	\$95,861,127	\$71,243,361	\$39,136,306	51.8	34.6	82.0
Subscriptions and sales.....	\$111,298,691	\$79,928,483	\$72,343,087	\$49,872,768	39.2	10.5	45.1
Book and job printing products.....	\$47,317,166	\$41,200,850	\$32,812,113	(¹)	14.8	25.6	.....
Sheet music and books of music.....	\$128,961	\$544,802	(¹)	(¹)	476.3	.....	.....
All other products.....	\$5,039,445	\$5,448,307	\$3,461,189	(¹)	47.5	57.4	.....

¹ Not reported.² Includes proprietors and firm members with their salaries; number only reported in 1900 and 1905, but not included in this table.³ Not reported separately.⁴ Decrease.

The progress in material prosperity of the newspaper industry from 1900 to 1905 is clearly indicated, since both the number of establishments and the number of publications increased at a satisfactory rate—in each case much more rapidly than from 1890 to 1900.

Elsewhere attention has been called to the gratifying increase in the number of establishments devoted to printing and publishing as a marked exception to the prevailing tendency of the period. It is impossible to measure in connection with newspapers and periodicals themselves the consolidation of interests which may be in progress, since the advancement of the industry requires that publications must be maintained as separate and individual, regardless of ownership and management. It is unquestionably true, however, that consolidation of ownership has been in progress, especially during the last decade, and perhaps to an increasing extent during the five years from 1900 to 1905. Such consolidation relates principally to daily newspapers and there have been many instances in which owners of newspapers in larger cities have acquired a control of or large interest in publications in other cities, but it is not likely that this tendency has become sufficiently important to exert much influence upon the total number of publications in any one class.

On a decade basis, capital increased between 1900 and 1905 at approximately the rate shown for the previous decade, but the expenditures for labor and materials were made upon a much more liberal basis,

and the value of products increased at a rate more than three times as great as that shown for the decade from 1890 to 1900.

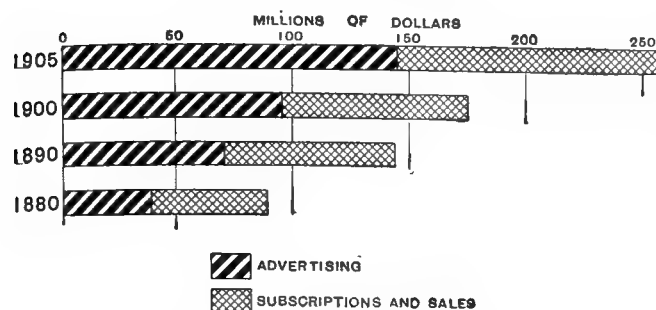
Incidental illustration of the prosperity of the industry is afforded by the pronounced decrease in the number of children employed. It is significant, indeed, that among the 10 leading industries, printing and publishing, and especially the newspaper and periodical branch, leads in the reduction of child labor.

PRODUCTS.

It will be observed that at the census of 1880 the receipts from subscriptions and sales exceeded those from advertising by almost \$11,000,000, or approximately one-quarter. In 1890 the products of both branches were of almost equal value, subscriptions and sales being greater by only \$1,000,000. The census of 1900, however, showed advertising well in the lead, with an excess of nearly \$16,000,000. Since 1900 this lead has been further increased, and in 1905 amounted to \$34,000,000—more than double that shown five years earlier.

This change in relative position did not result from failure on the part of receipts from sales to advance generously in amount, but from the much more rapid increase in the receipts from advertising; the former more than doubled from 1880 to 1905, but the latter much more than tripled.

DIAGRAM 3.—Comparative growth in value of advertising and subscriptions and sales: 1880 to 1905.



In 1880 the total value of advertising was equivalent to an expenditure of but 78 cents for every man, woman, and child in the United States. This amount increased to \$1.13 in 1890, to \$1.26 in 1900, and to \$1.79 in 1905, upon the basis of estimated population. The per capita value of advertising thus more than doubled from 1880 to 1905. On the other hand, the per capita value of subscriptions and sales increased much less rapidly. In 1880 the value per inhabitant was 99 cents; in 1890, \$1.15; in 1900, \$1.05; and in 1905, \$1.34. The significant changes here recorded suggest analysis by classes of product.

TABLE 23.—NEWSPAPERS AND PERIODICALS—VALUE OF PRODUCTS, BY CLASSES: 1890 TO 1905.

CLASS.	1905		1900		1890	
	Value of products.	Per cent of total.	Value of products.	Per cent of total.	Value of products.	Per cent of total.
Total.....	\$309,301,854	100.0	\$222,983,569	100.0	\$179,859,750	100.0
Newspaper products.....	256,816,282	83.0	175,789,610	78.9	143,586,448	79.8
Advertising.....	145,517,591	47.0	95,861,127	43.0	71,243,361	39.6
Subscriptions and sales.....	111,298,691	36.0	79,928,483	35.9	72,343,087	40.2
Book and job printing products.....	47,446,127	15.4	41,745,652	18.7	32,812,113	18.3
Book and pamphlet publications.....	14,697,941	4.8	18,407,528	8.3	.....	.....
Sheet music and books of music.....	128,961	(¹)	544,802	0.2	.....	.....
Job printing.....	32,619,225	10.6	22,793,322	10.2	.....	.....
All other products.....	5,039,445	1.6	5,448,307	2.4	3,461,189	1.9
Bookbinding.....	1,449,949	0.5	2,067,450	0.9	.....	.....
Blank books.....	434,147	0.1	554,557	0.3	.....	.....
Electrotyping, engraving, etc.....	647,037	0.2	491,567	0.2	.....	.....
Miscellaneous.....	2,508,312	0.8	2,334,733	1.0	.....	.....

¹ Less than one-tenth of 1 per cent.

Advertising and subscriptions and sales.—The increasing proportion contributed by advertising when compared with the other items of product proves to be of especial interest, and also the increasing preponderance of the combined returns of advertising and subscriptions and sales when compared with the other products, whether important, as in the case of book and job printing, or unimportant, as in the case of "all other," or miscellaneous products. The proportion supplied to the total value of products by book and job printing decreased 3.3 per cent in the five-year period, but analysis of this item into its parts, book and pamphlet publications, sheet music, etc., and job printing reveals the interesting fact that there was a marked decrease in the value of books, pamphlets, and music produced in newspaper establishments, and an increase in the value of miscellaneous job printing. Furthermore, the item "all other products" shows a decline. Thus in the proportions contributed by the various sources of income, advertising has materially increased during the past five years, principally at the expense of book and job printing. This doubtless indicates an increasing tendency to patronize establishments devoted exclusively to job printing. Such vitality in miscellaneous printing as the newspaper establishments have shown during the five-year period, is plainly confined to the simpler classes of printing.

TABLE 24.—Newspapers and periodicals—per cent which advertising and subscriptions and sales form of total value of products: 1880 to 1905.

CENSUS.	Advertising.	Subscriptions and sales.
1905.....	56.7	43.3
1900.....	54.5	45.5
1890.....	49.6	50.4
1880.....	44.0	56.0

The steady decrease in relative importance of the sales branch of newspaper and periodical assets as compared with the returns from advertising, is a matter of far-reaching consequence to the average publisher. It is possible that the rapidity with which advertising assets are outstripping those for subscriptions and sales can not be maintained in the future, especially should the general prosperity so marked in 1905 become less pronounced. But in view of the uniform change in progress since 1880, it can not be doubted that the reversal of proportions which has occurred is not a temporary or doubtful change, but must be reckoned with in every consideration of the sources of income of newspapers and periodicals. Furthermore, although the proportionate importance of these two classes of assets can not be traced accurately for any year earlier than 1880, there is little reason to doubt

that a similar change was in progress for a long period before that date, since for half a century or more advertising has steadily become a more important factor in the daily business of the community.

If further explanation be sought of the decided change which has taken place in the proportions contributed to value of products by subscriptions and sales and advertising, it may probably be found in the fact that advertising is the most sensitive feature of an industry peculiarly responsive to the conditions of general business. Large advertisers generally allot annually a definite amount of money for advertising. The amount of such appropriations is naturally governed by existing resources and by general prosperity. When occasion for economy arises, those mediums which seem to the advertiser to be of doubtful value are cut off. It is probable, therefore, that in retrenchment one of the first steps is a reduction in amount of advertising. On the other hand, the effect of prosperous times is seen in a large increase in the appropriations allotted for advertising, and hence a freer use of new mediums. As these individual expenditures often amount to great sums of money, the increase is naturally apt to be greater or more rapid than that for sub-

scriptions and sales, the aggregate of which of necessity is composed of large numbers of small amounts. Some confirmation of this suggestion will be found on page 724 in the marked differences shown by the two branches in the returns of the geographic divisions.

GEOGRAPHIC DIVISIONS.

Analysis by geographic divisions of the principal items secured in connection with newspapers and periodicals shows that the North Atlantic division contributed approximately one-half at each of the three censuses from 1890 to 1905, and together with the North Central division contributed almost five-sixths of the total value of products. The large proportion contributed by the former division was secured from approximately one-fifth of the total number of establishments, while the North Central division reported almost half of the total number.

These facts suggest that in the North Atlantic division, because of the small number of establishments, the product is concentrated in a small area; while in the North Central states the product is diffused over a great area through the large number of establishments.

TABLE 25.—NEWSPAPERS AND PERIODICALS—NUMBER OF ESTABLISHMENTS, NUMBER OF PUBLICATIONS, CAPITAL, SALARIES AND WAGES, POUNDS OF PAPER, AND VALUE OF PRODUCTS, BY GEOGRAPHIC DIVISIONS: 1880 TO 1905.

DIVISION.	Census.	Number of establishments.	Number of publications.	Capital.	Salaries and wages.	Pounds of paper.	Value of products.
Continental United States.....	1905	18,033	21,394	\$239,505,949	\$106,949,199	1,821,629,830	\$309,301,854
	1900	15,305	18,226	192,443,708	77,348,842	1,078,237,670	222,983,569
	1890	12,362	14,901	126,269,885	68,601,532	552,876,161	179,859,750
	1880	(¹)	11,314	(¹)	28,559,336	189,145,048	89,009,074
North Atlantic.....	1905	3,802	4,886	115,640,919	50,135,857	936,850,900	149,850,711
	1900	3,309	4,165	100,449,656	37,747,942	593,407,646	113,269,771
	1890	3,294	4,266	59,987,463	29,412,100	294,226,374	85,577,648
	1880	-----	3,501	-----	13,016,775	108,260,599	44,383,430
New England.....	1905	844	1,161	20,651,338	10,525,625	177,340,605	29,311,428
	1900	800	1,025	16,800,780	8,312,631	117,765,295	23,324,547
	1890	815	1,105	11,827,874	6,545,989	51,235,036	17,682,677
	1880	-----	902	-----	3,189,009	20,712,342	9,622,007
Southern North Atlantic.....	1905	2,958	3,725	94,989,581	39,610,232	759,510,295	120,539,283
	1900	2,509	3,140	83,648,876	29,435,311	475,642,351	89,945,224
	1890	2,479	3,161	48,159,589	22,866,111	242,991,338	67,894,971
	1880	-----	2,599	-----	9,827,766	87,548,257	34,761,423
South Atlantic.....	1905	1,362	1,567	13,671,059	5,262,146	72,130,438	14,124,030
	1900	1,118	1,324	10,491,896	4,085,093	42,381,523	10,242,622
	1890	895	1,016	5,938,534	3,512,695	25,656,376	8,642,993
	1880	-----	984	-----	1,713,664	9,754,901	5,012,574
North Central.....	1905	8,514	10,004	78,652,857	34,745,674	617,469,775	101,183,375
	1900	7,520	8,907	59,842,377	25,359,980	344,442,478	73,013,157
	1890	5,956	7,040	43,342,271	24,858,796	176,254,481	61,693,791
	1880	-----	4,987	-----	9,525,935	54,004,598	27,626,698
South Central.....	1905	2,462	2,773	16,414,350	6,849,790	76,584,292	19,098,830
	1900	1,947	2,178	11,097,256	4,476,724	41,030,511	12,166,636
	1890	1,271	1,452	8,126,597	4,709,388	23,944,314	10,722,181
	1880	-----	1,158	-----	2,062,434	8,188,219	5,634,855
Western.....	1905	1,893	2,164	15,126,764	9,955,732	118,594,425	25,044,908
	1900	1,411	1,652	10,562,523	5,679,103	56,975,512	14,291,383
	1890	946	1,127	8,875,020	6,108,553	32,794,616	13,223,137
	1880	-----	684	-----	2,240,528	8,936,731	6,351,517

¹ Not reported.

In general, the increase in salaries and wages and in value of products from 1900 to 1905 was approximately 40 per cent for the United States, and the

increases in the various divisions roughly conformed to this proportion. For capital the increase was considerably less, and in most divisions very much less.

The increase in pounds of paper used rose to almost 70 per cent for the United States, and in some of the geographic divisions exceeded that figure. The analysis by geographic divisions is of course based upon

the returns by states, which will be found elsewhere in detail.¹

¹ See Table 72, page 770.

TABLE 26.—NEWSPAPERS AND PERIODICALS—PER CENT DISTRIBUTION OF NUMBER OF PUBLICATIONS, CAPITAL, TYPECASTING AND TYPESETTING MACHINES, POUNDS OF PAPER, AND VALUE OF PRODUCTS, BY GEOGRAPHIC DIVISIONS: 1905 AND 1900.

DIVISION.	NUMBER OF PUBLICATIONS.		CAPITAL.		TYPECASTING AND TYPESETTING MACHINES.		POUNDS OF PAPER. ¹		VALUE OF PRODUCTS. ¹					
	1905	1900	1905	1900	1905	1900	1905	1900	Total.		Advertising.		Subscriptions and sales.	
									1905	1900	1905	1900	1905	1900
Continental United States	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
North Atlantic.....	22.8	22.9	48.3	52.2	42.4	48.0	51.4	55.0	48.6	50.5	47.6	50.0	49.9	51.0
New England.....	5.4	5.6	8.6	8.7	11.3	12.8	9.7	10.9	9.3	10.5	8.9	10.5	9.8	10.6
Southern North Atlantic.....	17.4	17.2	39.7	43.5	31.1	35.2	41.7	44.1	39.3	40.0	38.7	39.5	40.1	40.4
South Atlantic.....	7.3	7.3	5.7	5.5	7.0	6.3	4.0	3.9	4.6	4.8	5.1	5.2	4.0	4.4
North Central.....	46.8	48.9	32.8	31.1	33.1	32.3	33.9	31.9	32.6	32.5	32.3	32.1	33.0	32.9
South Central.....	13.0	11.9	6.9	5.8	7.5	4.8	4.2	3.8	5.9	5.5	6.0	5.4	5.7	5.7
Western.....	10.1	9.1	6.3	5.5	10.1	8.5	6.5	5.3	8.3	6.7	9.0	7.3	7.4	6.0

¹ For newspapers and periodicals only.

Inspection of the proportions contributed by various parts of the country in 1905 shows that the North Atlantic division, possessing but little more than one-fifth of the total number of publications, contributed almost half of the total capital, used nearly half of all the typesetting machines and more than half of the paper, and furnished half of the subscriptions and sales and almost half of the advertising. The North Central division, which reported nearly half of all publications, contributed but one-third to the other items mentioned. It must not be overlooked, however, that such changes in the proportionate importance of the various geographic divisions as are disclosed by a comparison of the figures for 1900 and 1905 have almost all been made at the expense of the leader—the North Atlantic division.

Printing and publishing is likely always to follow centers of population, but in many branches of the newspaper and periodical business the necessity for local population in connection with circulation is much less than formerly, because of increasing facilities for distribution. Sections of the country now seemingly inaccessible will doubtless become important because of rapidly increasing population, improved means of communication, and awakening industrial life.

No increase in the industry has been more striking than that reported in the number of pounds of paper used. Since paper is essential in all printing, it is obvious that no better index of the progress of the industry can be found than the use of this material. Although the amount employed practically doubled from 1890 to 1900, it continued to show a heavy percentage of increase during the succeeding five years. The lowest

percentage of increase appeared in the North Atlantic division, which consumed practically half of the entire amount. The largest percentage of increase was shown for the Western states, which greatly increased their lead over the South Atlantic and South Central groups in aggregate consumption. If the same proportions be continued, the Western states will overtake and outstrip the requirements of New England within the next decade.

TABLE 27.—Newspapers and periodicals—per cent of increase in number of establishments, capital, pounds of paper, and value of products, by geographic divisions: 1890 to 1905.

DIVISION.	NUMBER OF ESTABLISHMENTS.		CAPITAL.		POUNDS OF PAPER.		VALUE OF PRODUCTS.	
	1900 to 1905	1890 to 1900	1900 to 1905	1890 to 1900	1900 to 1905	1890 to 1900	1900 to 1905	1890 to 1900
Continental United States.....	17.8	23.8	24.5	52.4	68.9	95.0	38.7	24.0
North Atlantic.....	14.9	0.5	15.1	67.5	57.9	101.7	32.3	32.4
New England.....	5.5	11.8	22.9	42.0	50.6	129.9	25.7	31.9
Southern North Atlantic.....	17.9	1.2	13.6	73.7	59.7	95.7	34.0	32.5
South Atlantic.....	21.8	24.9	30.3	76.7	70.2	65.2	37.9	18.5
North Central.....	13.2	26.3	31.4	38.1	79.3	95.4	38.6	18.3
South Central.....	26.5	53.2	47.9	36.6	86.7	71.4	57.0	13.5
Western.....	34.2	49.2	43.2	19.0	108.2	73.7	75.2	8.1

¹ Decrease.

Consideration of the industries grouped by the Census often develops anew the fact that many industries are so closely related as to be interdependent. This is true of the printing and publishing and the paper and pulp industries. Of the total amount of paper manufactured in 1905, more than 900,000 tons were required solely for newspapers and periodicals,

representing almost one-third of the entire output of the paper mills of the United States. To make this paper nearly 15,000 men were required, representing approximately \$9,000,000 in wages. These mills used as raw material, exclusive of the logs imported from Canada, 1,300,000 cords of spruce, poplar, and hemlock logs, representing the timber product of approxi-

mately 100,000 acres. Thus every working day in the year the forests of New England and the Middle states, with scattered areas elsewhere in the North and Northwest, yielded approximately 1,765,000 feet B. M. to be transformed into the newspapers and magazines required to supply the people of the United States.

TABLE 28.—NEWSPAPERS AND PERIODICALS—VALUE OF ADVERTISING AND SUBSCRIPTIONS AND SALES, WITH PER CENT OF INCREASE, BY GEOGRAPHIC DIVISIONS: 1890 TO 1905.

DIVISION.	1905			1900			1890			PER CENT OF INCREASE.					
	Total.	Advertis- ing.	Subscrip- tions and sales.	Total.	Advertis- ing.	Subscrip- tions and sales.	Total.	Advertis- ing.	Subscrip- tions and sales.	Total.		Advertis- ing.		Subscrip- tions and sales.	
										1900 to 1905	1890 to 1900	1900 to 1905	1890 to 1900	1900 to 1905	1890 to 1900
Continental United States.....	\$256,816,282	\$145,517,591	\$111,298,691	\$175,789,610	\$95,861,127	\$79,928,483	\$143,586,448	\$71,243,361	\$72,343,087	46.1	22.4	51.8	34.6	39.2	10.5
North Atlantic.....	124,781,692	69,266,184	55,515,508	88,792,576	47,974,235	40,818,341	69,496,858	32,568,469	36,928,389	40.5	27.8	44.4	47.3	36.0	10.5
South Atlantic.....	11,807,779	7,371,258	4,436,521	8,480,006	4,994,983	3,485,023	7,147,009	3,790,568	3,356,441	39.2	18.7	47.6	31.8	27.3	3.8
North Central.....	83,833,602	47,055,208	36,778,394	57,049,471	30,767,290	26,282,181	47,596,252	24,065,572	23,530,680	46.9	19.9	52.9	27.8	39.9	11.7
South Central.....	15,062,302	8,694,904	6,367,398	9,693,618	5,128,293	4,565,325	8,307,432	4,445,185	3,862,247	55.4	16.7	69.5	15.4	39.5	18.2
Western.....	21,330,907	13,130,037	8,200,870	11,773,939	6,996,326	4,777,613	11,038,897	6,373,567	4,665,330	81.2	6.7	87.7	9.8	71.7	2.4

Comparison is made of the returns for advertising and subscriptions and sales at the three census periods 1890, 1900, and 1905 in order to call especial attention to the changes which have taken place in these most important particulars. It has already been suggested that the change in the proportions contributed by these two classes of assets constitute the most significant change in this branch of the industry. It now appears that the advance in advertising over subscriptions and sales has not been confined to any one geographic division. In 1890 four of the five geographic divisions showed an excess in value of advertising over that of subscriptions and sales, but the fifth showed such a heavy surplus in favor of subscriptions and sales that the grand total for the country showed a greater value for the latter than for the former.

In 1900 the four divisions which had previously favored advertising showed an increasing margin in favor of that class of assets; and the North Atlantic division, which had previously returned a large surplus for subscriptions and sales, reversed its attitude in this particular and reported an increase in advertising assets so noteworthy as to heavily overcome the lead which subscriptions and sales had recorded at the previous census, and also the normal increase which had occurred. In 1905 these conditions were still further emphasized. In fact, conditions at the last census do not suggest in the remotest degree any rivalry so far has advertising outstripped its competitor.

Average capital and average value of products.—The average capital per establishment in the newspaper and periodical industry increased somewhat from 1900 to 1905, while the average value of products increased materially, suggesting that because of the exceptional activity and prosperity of the period the capacity of

establishments was pushed to secure a greater average production. The percentage that the value of products forms of capital has advanced to a noteworthy degree during the five-year period under consideration.

TABLE 29.—Newspapers and periodicals—average capital and average value of products per establishment, with per cent which value of products forms of capital, by geographic divisions: 1905 and 1900.

DIVISION.	Census.	Average capital.	Average value of products.	Per cent value of products forms of capital.
Continental United States.....	1905	\$13,282	\$17,152	129.1
	1900	12,574	14,569	115.9
North Atlantic.....	1905	30,416	39,414	129.6
	1900	30,356	34,231	112.8
New England.....	1905	24,468	34,729	141.9
	1900	21,001	29,156	138.8
Southern North Atlantic.....	1905	32,113	40,750	126.9
	1900	33,340	35,849	107.5
South Atlantic.....	1905	10,037	10,370	103.3
	1900	9,385	9,162	97.6
North Central.....	1905	9,238	11,884	128.6
	1900	7,968	9,709	122.0
South Central.....	1905	6,667	7,757	116.4
	1900	5,700	6,249	109.6
Western.....	1905	7,991	13,230	165.6
	1900	7,486	10,129	135.3

Analysis by geographic divisions shows that the average capital and the average value of products per establishment in the North Atlantic division were more than double the corresponding averages for the entire United States, and three or more times as great as those for any other geographic division. In the North Atlantic division, New York was the ranking state in both; in the North Central, Illinois; and in the South Atlantic, the District of Columbia.

In per capita¹ value of advertising the lead was taken by widely separated divisions—the North Atlantic ranking first, with a per capita of \$3.06 and the Western division second, with \$2.93. The other extreme is found in the South Atlantic and South Central divisions, each with a per capita of less than \$1.

In subscriptions and sales the South Atlantic and

South Central divisions had each a small per capita, only 40 and 42 cents, respectively, while the North Atlantic again led, with \$2.46, followed by the Western, with \$1.83.

STATES AND TERRITORIES.

The changes shown for the principal items by the different states are very significant.

TABLE 30.—NEWSPAPERS AND PERIODICALS—PER CENT OF INCREASE IN NUMBER OF ESTABLISHMENTS, CAPITAL, POUNDS OF PAPER, AND VALUE OF PRODUCTS, BY STATES AND TERRITORIES: 1890 TO 1905.

STATE OR TERRITORY.	ESTABLISHMENTS.		CAPITAL.		POUNDS OF PAPER.		VALUE OF PRODUCTS.					
	1900 to 1905	1890 to 1900	1900 to 1905	1890 to 1900	1900 to 1905	1890 to 1900	Aggregate.		Advertising.		Subscriptions and sales.	
							1900 to 1905	1890 to 1900	1900 to 1905	1890 to 1900	1900 to 1905	1890 to 1900
Continental United States.....	17.8	23.8	24.5	52.4	68.9	95.0	38.7	24.0	51.8	34.6	39.2	10.5
Alabama.....	17.9	28.9	73.8	16.8	146.2	27.0	67.4	3.9	90.1	12.2	51.1	111.4
Arizona.....	43.8	52.4	82.6	85.5	96.0	85.9	65.0	53.3	73.7	84.6	88.0	9.1
Arkansas.....	19.4	50.7	61.9	29.7	65.8	46.7	41.2	13.9	68.3	15.5	32.0	15.5
California.....	35.7	36.2	47.4	2.2	91.3	61.0	69.7	5.5	82.2	10.9	64.0	15.3
Colorado.....	53.8	33.3	39.0	43.3	109.7	122.5	52.0	14.2	55.8	14.6	61.2	20.2
Connecticut.....	11.2	15.7	18.9	78.3	35.5	101.7	30.0	19.9	29.5	39.5	33.7	15.1
Delaware.....	26.9	27.2	14.2	8.3	98.8	12.1	8.2	22.6	10.3	111.6	18.6	18.6
District of Columbia.....	18.3	361.5	18.5	315.6	42.4	49.0	13.2	57.3	17.7	83.5	15.9	12.2
Florida.....	45.3	3.6	198.9	11.2	120.6	27.5	81.6	18.3	83.2	21.1	30.1	18.1
Georgia.....	19.3	14.2	47.8	44.0	134.4	17.4	57.5	118.3	79.2	13.5	39.2	120.3
Idaho.....	28.8	127.6	68.1	93.7	187.5	140.8	76.1	86.5	88.7	64.0	63.4	79.9
Illinois.....	10.4	26.4	65.9	26.2	98.2	71.3	47.6	11.9	52.6	27.7	54.8	14.0
Indian Territory.....	163.8	625.0	296.5	383.4	321.6	447.4	238.1	546.8	265.0	545.2	205.5	465.8
Indiana.....	4.9	26.3	25.6	91.2	81.2	135.3	19.0	69.7	41.0	46.5	49.0	34.3
Iowa.....	5.6	41.5	25.9	34.3	42.2	123.3	34.9	29.2	39.4	41.4	21.8	41.5
Kansas.....	7.4	15.1	44.9	117.0	65.2	25.3	32.8	16.6	40.4	111.2	39.5	17.9
Kentucky.....	17.7	34.8	17.3	12.0	33.6	76.3	28.2	112.2	46.0	11.2	23.2	10.2
Louisiana.....	27.6	15.5	20.7	38.9	56.7	70.3	43.9	17.2	38.4	4.7	44.0	12.6
Maine.....	14.2	14.3	16.8	46.4	25.4	160.7	20.8	27.4	19.9	81.6	22.1	0.2
Maryland.....	13.5	24.8	9.7	78.5	35.9	139.9	22.9	30.6	33.9	43.4	12.6	10.4
Massachusetts.....	6.1	13.2	30.4	38.0	57.1	141.2	25.4	39.5	27.7	73.9	29.4	36.8
Michigan.....	12.2	16.8	14.8	19.7	93.6	71.9	35.4	17.7	52.7	24.9	35.5	7.6
Minnesota.....	27.5	64.2	15.5	72.8	79.1	123.8	33.0	39.3	64.7	40.0	39.8	11.4
Mississippi.....	15.2	44.7	49.7	36.0	42.8	112.9	42.9	45.6	52.6	39.8	23.0	43.4
Missouri.....	9.2	36.6	36.3	42.1	71.8	128.2	42.1	16.8	56.3	33.2	33.6	5.0
Montana.....	6.4	90.2	31.3	40.6	36.2	206.3	50.0	60.2	55.9	71.4	41.0	57.4
Nebraska.....	13.6	19.4	18.7	5.1	71.5	59.4	45.0	14.6	57.5	18.1	38.2	13.4
Nevada.....	181.5	163.6	81.5	26.0	123.0	130.8	127.7	4.3	163.4	14.9	40.2	7.4
New Hampshire.....	19.3	19.6	115.9	35.1	19.3	46.7	15.1	16.6	2.2	4.4	3.4	117.3
New Jersey.....	24.5	16.5	7.8	77.4	52.5	97.8	20.3	25.8	27.1	51.0	33.2	117.7
New Mexico.....	51.4	12.9	63.2	36.1	153.4	10.4	41.7	14.4	27.8	12.2	58.4	129.5
New York.....	24.1	14.5	12.4	86.8	58.3	95.3	36.2	41.8	52.9	42.0	37.7	19.3
North Carolina.....	23.0	37.5	55.4	43.5	132.7	72.3	52.5	38.9	71.7	37.2	50.9	39.7
North Dakota.....	67.2	67.9	75.8	12.6	42.7	152.9	62.0	16.7	62.8	44.5	40.3	25.7
Ohio.....	12.8	24.1	46.4	61.1	118.9	34.6	34.6	11.5	56.0	26.3	30.8	6.0
Oklahoma.....	149.0	553.3	186.2	743.3	599.5	577.0	180.1	560.7	240.3	426.8	165.8	484.2
Oregon.....	17.0	43.2	118.1	100.8	122.8	63.2	77.1	14.6	121.2	114.9	81.3	111.1
Pennsylvania.....	9.0	5.0	17.2	49.0	63.4	30.3	30.3	13.2	41.7	46.2	39.6	115.6
Rhode Island.....	50.0	120.0	46.5	40.6	33.7	48.7	70.9	56.3	4.5	70.3	25.1	33.3
South Carolina.....	29.6	28.9	57.9	11.0	64.9	46.0	53.7	20.4	81.6	3.3	28.6	16.6
South Dakota.....	37.4	32.9	91.0	10.1	64.9	46.0	74.6	0.8	71.4	11.5	44.0	14.4
Tennessee.....	19.8	21.9	31.1	53.5	109.4	80.0	60.6	22.8	67.2	26.7	40.6	33.1
Texas.....	8.4	67.3	67.6	48.4	53.2	78.3	91.0	0.3	108.9	113.9	101.9	4.5
Utah.....	19.4	195.2	17.2	26.5	54.0	30.7	27.0	18.4	28.3	42.0	20.6	15.7
Vermont.....	4.9	10.9	20.3	9.9	96.4	98.6	45.6	13.6	54.9	20.4	54.9	0.6
Virginia.....	21.0	3.2	30.0	123.1	285.6	56.7	158.5	15.6	157.8	1.7	136.2	4.3
Washington.....	44.7	50.4	132.1	139.7	139.3	95.9	39.2	68.8	71.4	50.2	44.5	46.2
West Virginia.....	25.9	42.7	40.6	139.7	95.8	79.2	35.5	26.0	50.5	39.3	27.6	10.9
Wisconsin.....	20.2	30.6	14.9	66.0	180.1	1.5	84.8	117.5	86.6	129.4	106.4	123.7
Wyoming.....	15.8	81.0	68.6	7.5	180.1	1.5	84.8	117.5	86.6	129.4	106.4	123.7

¹ Decrease.

In comparing the percentages of increase by states, Indian Territory and Oklahoma should not be considered, as the increase in these territories is necessarily abnormal on account of recent development. Exclusive of these, there were 15 states and territories—practically one-third of the entire number—in which capital increased more than 50 per cent in the five-year period; at the same rate of increase it would double in a decade. In amount of paper used the

increase was so great and so widely distributed that 36 of the states and territories reported an increase of more than 50 per cent; the increase, therefore, was general practically throughout the United States.

Inspection of the columns presenting the increase in value of products shows that the increase in value of subscriptions and sales in the five years from 1900 to 1905 was so great that by comparison the increase in the previous ten-year period appears insignificant.

Only 6 states showed a percentage of increase for the period from 1890 to 1900 equal to or exceeding that for the entire United States from 1900 to 1905, and only Idaho and Montana showed an increase as great as 50 per cent. Yet during the half decade covered by this report 13 states showed an increase exceeding 50 per cent.

Eight states reported for the decade 1890 to 1900 an increase in value of advertising greater than 50 per cent. But so prosperous had this branch of the industry become in 1905 that 32 states reported for the five-year period an increase in excess of 50 per cent; the increase for the entire United States, upon a decade basis, was more than double that reported for the previous period.

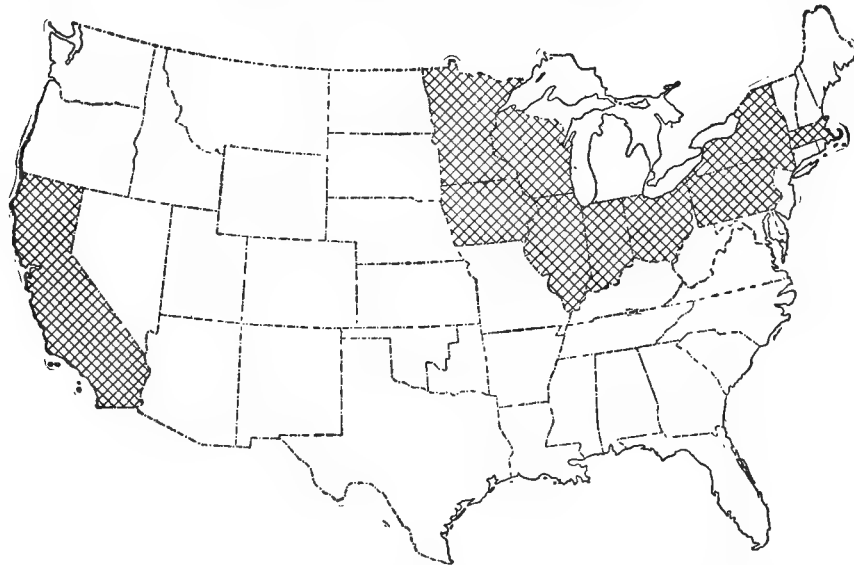
COMPARISON OF EXCLUSIVE AND COMBINATION ESTABLISHMENTS.

In 1905, statistics of establishments devoted exclusively to the production of newspapers and periodicals are presented separately for the first time. They formed 26.6 per cent of all newspaper and periodical establishments, and contributed 71.9 per cent of the

total value of newspaper and periodical products. The prominence of the North Atlantic group of states in this branch of the industry is emphasized by Table 73. This group contributed approximately one-third of the total number of establishments reported, and more than one-half the quantity of paper used and value of products shown—both for advertising and subscriptions and sales. Statistical quantity, indeed, follows centers of population, since establishments devoted so exclusively to newspaper and periodical publications that other productions are merely by-products, are located, with few exceptions, in the larger cities. The states reporting a value of products for exclusive establishments exceeding \$2,000,000 are those in which the largest cities are located. The exclusive establishments, though but little more than one-third as great in number as the combination establishments,¹ used more than four-fifths of the weight of all paper consumed in newspapers and periodicals, and contributed twice the value of subscriptions and sales and nearly three times the value of advertising.

¹ For details by states, see Tables 73 and 74, pages 778 and 780.

MAP 14.—STATES IN WHICH NEWSPAPER AND PERIODICAL PRODUCTS OF COMBINATION ESTABLISHMENTS ARE VALUED AT OVER \$2,000,000: 1905.



The average value of products per establishment in the entire printing and publishing industry and also in establishments devoted exclusively to book and job printing has been shown by geographic divisions. Of even greater interest, as indicating the concentration of capital in establishments devoted exclusively to newspapers and periodicals, are the figures shown in Table 31.

The influence of large urban establishments, and especially of the great metropolitan newspapers of New York and other large eastern cities, is clearly

shown in this analysis, the division in which they are located being far in the lead in average value of newspaper and periodical products. The average value per exclusive establishment in 1905 in New York state, for example, was \$76,731—an amount practically double the average in this class of establishments for the entire United States, and much greater than that for Illinois (\$45,073), the state second in rank. For combination establishments the average value of newspaper and periodical products was less than one-seventh of that for exclusive establishments. In this

class New York state again led. Pennsylvania, which ranked second, had less than one-third the average value of products shown for New York.

In exclusive newspaper and periodical establishments, as in the general industry, the North Atlantic division led in average value of products.

MAP 15.—STATES IN WHICH NEWSPAPER AND PERIODICAL PRODUCTS OF EXCLUSIVE ESTABLISHMENTS ARE VALUED AT OVER \$2,000,000: 1905

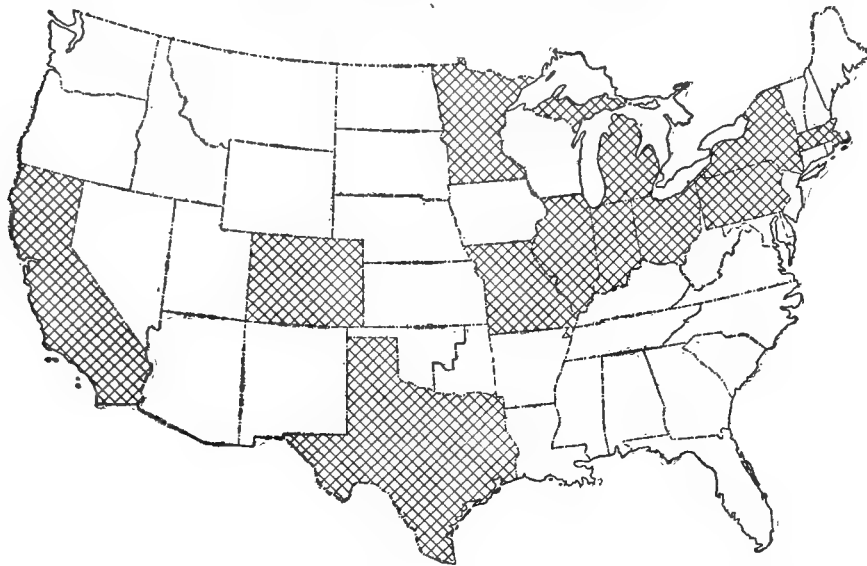


TABLE 31.—Newspapers and periodicals—average value of newspaper and periodical products in each class of establishment, by geographic divisions: 1905.

DIVISION.	Exclusive establishments.	Combination establishments.
Continental United States.....	\$38,583	\$5,442
North Atlantic.....	64,979	12,772
New England.....	51,974	9,182
Southern North Atlantic.....	69,490	13,668
South Atlantic.....	18,123	4,233
North Central.....	32,147	3,834
South Central.....	19,018	2,814
Western.....	24,554	5,356

PERIOD OF ISSUE, CHARACTER, AND LANGUAGE OF PUBLICATIONS.

The exceptional character of the printing and publishing industry among all industries covered by the manufactures census is illustrated by the statistics which were secured. For all other industries the statistics obtained relate only to the material progress of the industry itself, such as number of establishments, number of persons employed, wages paid, expenditures for various classes of material, and value of products. In the case of printing and publishing, however, in addition to these items an important class of statistics is obtained dealing with the number and circulation of newspapers and periodicals. This branch of census returns possesses much more importance for the average citizen than the facts concerning the financial operations of the industry, and in some respects is much more important for the entire country, since it presents detailed information concerning circulation of the utmost value in connection with the tendencies and intellectual life of the people during the census year.

Period of issue.—During the twenty-five years from 1880 to 1905 the number of newspapers and periodicals of all classes in the United States practically doubled.¹ Of the 10,000 publications thus added, one-third was contributed by each of the first two decades and the remaining third by the one-half decade 1900 to 1905. Hence the increase in the number of publications was twice as rapid during the last five-year period as during the two decades preceding.

TABLE 32.—Newspapers and periodicals—number, by period of issue: 1880 to 1905.

PERIOD OF ISSUE.	1905	1900	1890	1880
Total.....	21,394	18,226	14,901	11,314
Daily.....	2,452	2,226	1,610	971
Morning.....	637	595	559	438
Evening.....	1,815	1,631	1,051	533
Triweekly.....	58	63	34	73
Semiweekly.....	645	637	194	133
Weekly.....	15,046	12,979	10,814	8,633
Monthly.....	2,500	1,817	1,734	1,167
Quarterly.....	353	237	225	116
All other classes.....	340	208	290	221

Of the increase in number of publications for the twenty-five year period covered by the table, approximately five-eighths were contributed by the weekly class and more than one-fourth by the daily and monthly classes combined. These three classes constituted 93.5 per cent of the entire number of publications reported in 1905, compared with 95.2 per cent of those reported in 1880. The slight decrease in the proportion contributed to the total by the three main classes of publications is due to the large increase in number of semiweekly publications from 1880 to 1900, a subject discussed at some length in the Twelfth Census

¹ For distribution by states, see Table 75, page 782.

report upon printing and publishing.¹ The increase here noted, however, appears to have been checked, since from 1900 to 1905 the number of semiweekly publications remained practically unchanged. It should be noted that in 1900 the proportion contributed by the combined daily, weekly, and monthly classes was 93.4 per cent of the total number, thus showing that since the exceptionally rapid increase of the semiweekly, the three principal classes have contributed a slightly increased proportion of the total number of publications, so that in 1905 there remained in all the other classes but 6.5 per cent of the publications considered by the census.

TABLE 33.—*Newspapers and periodicals—per cent of increase in number, by period of issue: 1880 to 1905.*

PERIOD OF ISSUE.	1900 to 1905	1890 to 1900	1880 to 1890
Total.....	17.4	22.3	31.7
Daily.....	10.2	38.3	65.8
Morning.....	7.1	6.4	27.6
Evening.....	11.3	55.2	97.2
Semiweekly.....	16.5	82.4	153.4
Weekly.....	1.3	228.4	45.9
Monthly.....	15.9	20.0	25.3
Quarterly.....	37.6	4.8	48.6
Yearly.....	48.9	5.3	94.0
All other classes.....	26.9	17.6	31.2

¹ Decrease.

The varying percentages of increase in the seven classes of newspapers and periodicals, to which incidental reference has already been made, show for the period 1900 to 1905 a decidedly greater rate of increase in the monthly class than in either of the other two principal classes. This relatively large increase is doubtless due to the changing relations of the monthly to other classes of publications and to the noteworthy increase in circulation which has occurred in this class.

Of the seven classes of publications represented in the table the weeklies contribute nearly three-fourths of the total number of publications. The exact percentage in 1905 was 70.3 as compared with 76.3 in 1880. This comparison indicates a decreasing proportion on the part of weeklies during the twenty-five year period, but since the weekly contributes much the largest absolute number of publications, and is likely to continue to do so in the future, some further analysis by geographic groups of states is of interest.

A fair increase in the number of weekly publications occurred in all main geographic divisions from 1900 to 1905. In the two parts of the North Atlantic division the increase is very unequal, that reported for the Southern North Atlantic section being very small, less, in fact, than half of the increase recorded in the

remainder of the division (comprising the New England states).

DIAGRAM 4.—*Growth in number of publications: 1850 to 1905.*

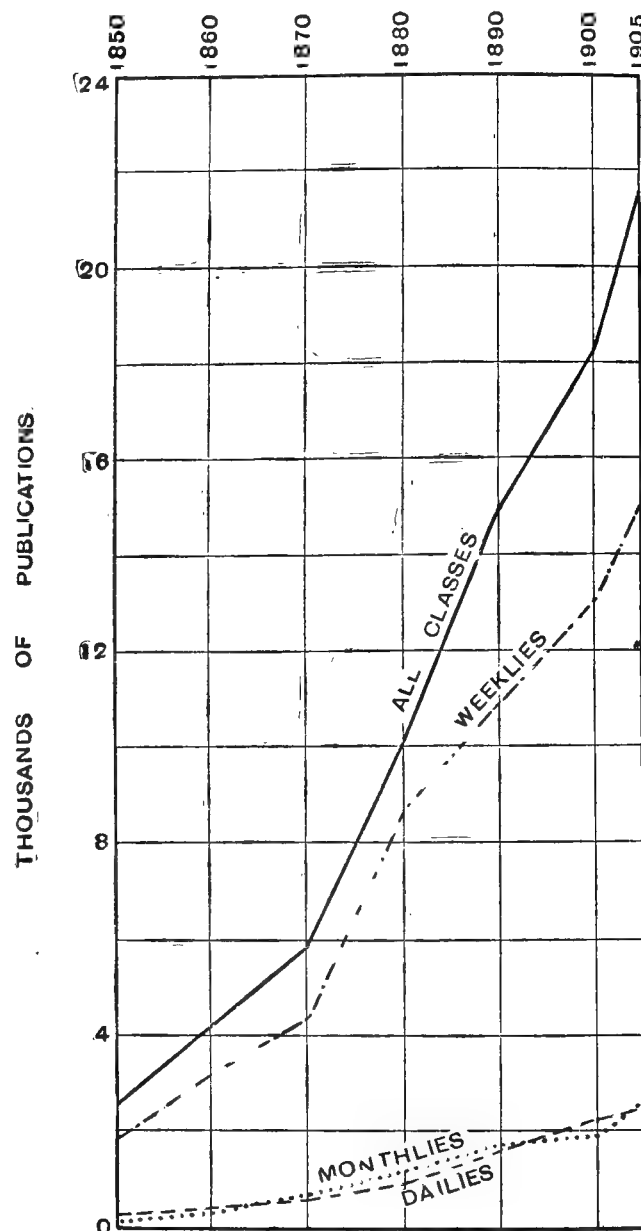


TABLE 34.—*Newspapers and periodicals—number of weeklies, with per cent of increase, by geographic divisions: 1905 and 1900.*

DIVISION.	NUMBER.		PER CENT OF IN- CREASE.
	1905	1900	
Continental United States.....	15,046	12,979	15.9
North Atlantic.....	2,864	2,568	11.5
New England.....	708	588	20.4
Southern North Atlantic.....	2,156	1,980	8.9
South Atlantic.....	1,115	952	17.1
North Central.....	7,383	6,589	12.1
South Central.....	2,198	1,718	27.9
Western.....	1,486	1,152	29.0

¹ Twelfth Census, Manufactures, Part III, page 1045.

TABLE 35.—*Newspapers and periodicals—per cent of increase in number of morning and evening papers, by geographic divisions: 1880 to 1905.*

DIVISION.	TOTAL.			MORNING.			EVENING.		
	1900 to 1905	1890 to 1900	1880 to 1890	1900 to 1905	1890 to 1900	1880 to 1890	1900 to 1905	1890 to 1900	1880 to 1890
Continental United States.....	10.2	38.3	65.8	7.1	6.4	27.6	11.3	55.2	97.2
North Atlantic.....	4.2	32.2	47.1	3.5	6.8	24.8	4.4	44.8	61.4
New England.....	16.8	42.2	48.4	12.0	35.1	12.1	14.9	44.9	69.0
Southern North Atlantic.....	8.8	28.4	46.7	9.8	11.6	29.2	8.5	44.7	58.3
South Atlantic.....	15.1	48.6	28.9	10.9	14.3		17.9	86.3	88.9
North Central.....	6.2	39.7	96.6	4.1	10.5	40.4	6.8	55.9	134.3
South Central.....	24.5	56.5	66.3		17.5	29.5	35.6	84.0	107.7
Western.....	25.5	29.3	52.8	22.1	9.2	27.9	27.7	46.5	83.6

¹ Decrease.

Only one of the classes mentioned in Table 32 requires further consideration. Daily newspapers are

divided into morning and evening publications, and in the previous report upon printing and publishing attention was called to the marked increase which had occurred in the evening papers as compared with the morning. The difference, however, was much less striking during the five years from 1900 to 1905 than during the previous decade, but the relations of the subdivisions of daily newspapers possess so much importance as to warrant analysis in some detail.

The increasing number of daily newspapers in the states and territories in which the number of such publications has heretofore been relatively small, is clearly indicated by the decline in the proportionate contribution of the North Atlantic division to the total number of such publications. The changes in proportion shown by the other geographic divisions are not especially significant, and doubtless merely reflect the variations which are to be expected because of changes in population and in commercial conditions.

TABLE 36.—*NEWSPAPERS AND PERIODICALS—PER CENT DISTRIBUTION OF MORNING AND EVENING PAPERS, BY GEOGRAPHIC DIVISIONS: 1880 TO 1905.*

DIVISION.	TOTAL.				MORNING.				EVENING.			
	1905	1900	1890	1880	1905	1900	1890	1880	1905	1900	1890	1880
Continental United States.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
North Atlantic.....	27.4	28.9	30.2	34.1	27.9	28.9	28.8	29.5	27.2	28.9	31.0	37.9
New England.....	7.3	8.6	8.4	9.4	6.9	8.4	6.6	7.6	7.5	8.7	9.3	10.9
Southern North Atlantic.....	20.1	20.3	21.8	24.7	21.0	20.5	22.2	21.9	19.7	20.2	21.7	27.0
South Atlantic.....	7.4	7.2	6.6	8.5	11.2	10.7	10.0	12.8	6.2	5.8	4.9	5.1
North Central.....	41.8	43.3	42.9	36.2	33.1	35.4	32.2	32.2	45.1	47.0	46.8	39.4
South Central.....	11.0	9.7	8.6	8.5	10.5	11.3	10.2	10.0	11.1	9.2	7.7	7.3
Western.....	12.4	10.9	11.7	12.7	18.2	16.0	15.6	15.5	10.4	9.1	9.6	10.3

From 1900 to 1905 the evening papers continued to increase in number somewhat faster than the morning papers, the excess of evening over morning papers being 1,178 in 1905, as compared with 1,036 in 1900. It should be noted, however, that the total increase of both morning and evening papers is considerably less upon a decade basis than that from 1890 to 1900. The smallest percentages of increase, as perhaps might be expected, are reported for the older and more populous states embraced in the North Atlantic and North Central divisions.

Character.—The Census distributes the newspapers and periodicals published in the United States into 13 subjects,¹ of which one group, "news, politics, and family reading," contributes approximately four-fifths of the entire number, although there has been a slight decrease in the proportion since 1880.

If the classes of publications shown in Table 37 are grouped into six more general classes, as shown in Table 38, it is possible to observe more accurately the general trend of increase by securing larger and thus more significant proportions.

TABLE 37.—*Newspapers and periodicals—number and character, with per cent of increase: 1880 to 1905.*

CHARACTER.	NUMBER OF PUBLICATIONS REPORTING.				PER CENT OF INCREASE.		
	1905	1900	1890	1880	1900 to 1905	1890 to 1900	1880 to 1890
Total.....	21,394	18,226	14,901	11,314	17.4	22.3	31.7
News, politics, and family reading.....	16,578	14,939	11,469	8,863	11.1	30.3	29.4
Religious.....	1,287	952	1,025	553	35.2	27.1	85.4
Agricultural, horticultural, dairy, etc.....	360	407	263	173	17.3	16.7	32.0
Commerce, finance, insurance, railroads, etc.....	364	190	239	363	91.6	20.5	234.2
Trade journals.....	627	520	432	(²)	20.6	20.4	.....
General literature, magazines, etc.....	328	239	291	189	37.2	21.9	54.0
Medicine and surgery.....	192	111	123	114	73.0	29.8	7.9
Law.....	81	62	47	45	30.6	31.9	4.4
Science and mechanics.....	83	66	83	48	25.8	20.5	22.1
Fraternal.....	450	200	216	149	125.0	27.4	45.0
Education and history.....	173	120	119	248	44.2	0.8	252.0
Society, art, music, fashion, etc.....	155	88	152	72	76.1	24.1	111.1
College and school periodicals.....	178	139	137	(³)	28.1	1.5	.....
Miscellaneous.....	538	293	305	6477	83.6	23.9	236.1

¹ Includes 1,182 publications not reporting operations, as they can not be excluded from the classification.

² Decrease.

³ Trade journals included with commerce, finance, insurance, railroads, etc.

⁴ College and school periodicals included with education and history.

⁵ Sunday newspapers included with miscellaneous.

¹ For distribution by states, see Table 75, page 782.

TABLE 38.—*Newspapers and periodicals—per cent distribution by character of publication: 1880 to 1905.*

CHARACTER.	1905	1900	1890	1880
Total.....	100.0	100.0	100.0	100.0
News and general literature.....	79.0	83.3	78.9	80.0
Religious.....	6.0	5.2	6.9	4.9
Trade.....	4.6	3.9	4.5	3.2
Agricultural.....	1.7	1.7	1.8	1.5
Science and education.....	3.3	2.7	3.4	4.2
Miscellaneous.....	5.4	3.2	4.5	6.2

Publications devoted to general news and literature (still approximately four-fifths of the entire number) show a movement in the five-year period from 1900 to 1905 in marked contrast to that shown in the previous decade. The loss has been absorbed principally by miscellaneous publications devoted to a score of subjects, perhaps offering additional evidence of the mental activity of the period and the diversity of subjects to which periodicals are now devoted.

Language.—The number of publications printed in English form the great majority of newspapers and periodicals published in the United States. All other languages combined contributed in 1905 only 5.7 per cent of the total number of publications.

TABLE 39.—*Newspapers and periodicals—number, classified by language: 1880 to 1905.*

LANGUAGE.	1905	1900	1890	1880
Total.....	21,394	18,226	14,901	11,314
English.....	20,184	17,194	13,848	10,515
Arabic.....	3	—	—	—
Armenian.....	3	—	1	—
Bohemian.....	44	28	22	13
Bohemian and English.....	2	1	1	—
Catalan.....	—	—	—	1
Chinese.....	7	5	3	2
Dutch.....	21	12	16	9
Finnish.....	13	7	4	—
French.....	41	27	40	41
French and English.....	3	4	5	—
Gaelic.....	2	—	1	—
Gaelic and English.....	16	3	3	—
German.....	619	613	727	641
German and English.....	29	20	27	—
German and Hebrew.....	13	3	4	—
Greek.....	5	—	—	—
Hebrew.....	18	13	5	—
Hungarian.....	5	2	1	—
Indian and English.....	2	3	1	3
Irish.....	—	—	—	1
Italian.....	58	35	13	4
Italian and English.....	2	—	1	—
Japanese.....	9	—	—	—
Lithuanian.....	11	9	1	—
Polish.....	46	33	18	2
Portuguese.....	10	2	2	2
Scandinavian ¹	158	115	112	49
Slavonic, not specified.....	20	4	2	—
Spanish.....	31	39	29	26
Spanish and English.....	5	1	7	—
Syrian.....	2	—	—	—
Volapuk.....	—	—	1	—
Volapuk and English.....	—	—	1	—
Welsh.....	2	—	—	5
Welsh and English.....	—	1	1	—
All other.....	10	52	—	—

¹ Includes Danish, Norwegian, and Swedish.

The number of different languages represented in the foregoing table is 27. The 4 languages that have been added to the list since 1900—Greek, Japanese, Syrian, and Arabic—reflect the increasing number of immigrants of these nationalities now coming to this country.

TABLE 40.—*Newspapers and periodicals—number, classified by languages arranged by race: 1880 to 1905.*

RACE.	1905	1900	1890	1880
Total.....	21,394	18,226	14,901	11,314
English.....	20,184	17,194	13,848	10,515
Germanic.....	682	648	774	650
Scandinavian and Finnish.....	171	122	116	49
Latin.....	155	108	97	74
Slavonic.....	128	77	45	15
Oriental.....	24	5	4	2
Hebrew.....	18	13	5	—
Miscellaneous.....	32	59	12	9

The grouping of these publications by language brings out in a striking way the tendency of immigration at the present time. The publications which have increased most generously in number are for some of those nationalities which are contributing a large number of immigrants to the population of the United States at the present time—Italian, Scandinavian and Finnish, and Polish. Although the Hebrews and Germans ranked second and fourth, respectively, in the number of immigrants contributed to the population of the United States in 1905, there has been only a slight increase in number of publications in these languages. The explanation doubtless lies in the fact that the former as a mass have not as yet acquired the newspaper and periodical habit, while the latter already had a large number of publications.

CIRCULATION.

Statistics of circulation constitute, from the popular standpoint, the most interesting portion of the returns collected concerning the publishing and printing industry. Tables presenting circulation of various classes of publications make it possible to measure with considerable accuracy the reading tendencies of the people of the United States at each census period.

The circulation returns secured by the Census permit the preparation of two sets of tables—the first giving the circulation per issue, which is reported upon the schedules, and the second, derived from the first, giving the aggregate circulation per annum. In this report greater attention is paid to circulation per issue than to the aggregate circulation per annum, not merely because such discussion deals with figures actually reported upon the schedules, but principally because only in this class of circulation can the changes which are occurring be definitely measured.

The introduction of typesetting machines, the perfection of the printing press, and the reduction in the price of paper during the period from 1880 to 1900 greatly cheapened the cost of production. This resulted in very large percentages of increase in aggregate circulation per issue, and hence in the aggregate number of copies issued annually. That the marked statistical effect of these changes for the most part has been spent is evidenced by the fact that percentages of increase from 1900 to 1905, when considered upon

a decade basis, remained practically the same as those for the period from 1890 to 1900.

Although the aggregate circulation per issue and the aggregate number of copies issued during the census year have shown about the same rate of increase from 1900 to 1905 as that from 1890 to 1900, the increase in 1905 in number of pounds of paper used was much greater, upon a decade basis, than the increase reported for the previous decade. This fact doubtless reflects the rapid expansion in size of publications, resulting not only from the constantly increasing use of typesetting machines and of illustrations, but especially from advertising patronage secured during an unusually extended period of prosperity. It is possible to measure this increase approximately. If

the standard size of 24 x 38 inches be accepted, and the weight of this paper averaged 40 pounds to the ream, the newspapers and periodicals issued in 1890 averaged 5.7 pages; in 1900, 6.6 pages; and in 1905, 8.5 pages. In 1900 the influence of the typesetting machine upon the size of publications was just beginning to be felt, but by 1905 the effect of this revolution in newspaper typography had become very marked. The next census will be likely to show whether the limit of size has been reached.

The absolute increase in the circulation per issue of all classes of publications further illustrates the fact that the five-year period from 1900 to 1905 has shown an increase in circulation more than commensurate with that shown in either of the two preceding decades.

TABLE 41.—NEWSPAPERS AND PERIODICALS—AGGREGATE CIRCULATION PER ISSUE, AGGREGATE NUMBER OF COPIES ISSUED DURING THE CENSUS YEAR, AND POUNDS OF PAPER USED, WITH PER CENT OF INCREASE: 1880 TO 1905.

	CENSUS.				PER CENT OF INCREASE.		
	1905	1900	1890	1880	1900 to 1905	1890 to 1900	1880 to 1890
Aggregate circulation per issue.....	139,939,229	106,889,334	68,147,619	31,779,686	30.9	56.8	114.4
Aggregate number of copies issued during the year.....	10,325,143,188	7,856,028,749	4,669,217,750	2,067,848,209	31.4	68.3	125.8
Pounds of paper used	1,821,629,830	1,078,237,670	552,876,161	189,145,048	68.9	95.0	192.3

It is probable, however, that one of the most important factors in this apparent retardation in increase is the undoubted change in the progress of the several classes of publications, by which the daily and the monthly are fast outstripping the weekly.

The volume of production in 1905 really needs no qualification or apology, since it has swelled to such gigantic figures that a comparatively small percentage of increase means an enormous absolute advance. In both aggregate circulation per issue and aggregate number of copies issued during the year, the absolute increase shown for the five-year period from 1900 to 1905 is greater than the corresponding aggregate reported in 1880. Indeed, since that year the aggregate circulation per issue of all publications in the United States has increased more than fourfold, and that of aggregate number of copies issued almost fivefold. In both classes the returns in 1905 are more than double those presented in 1890. In fact, the aggregate number of copies of newspapers and periodicals issued in the United States during the last census year is now indicated by figures so vast that the human mind is not able to comprehend them, and it is only by resorting to the familiar expedient of comparison by distance, such as around the globe, or from the earth to the moon, or by filling imaginary trains of freight cars, that it is possible to secure comparisons which faintly suggest the magnitude of these fig-

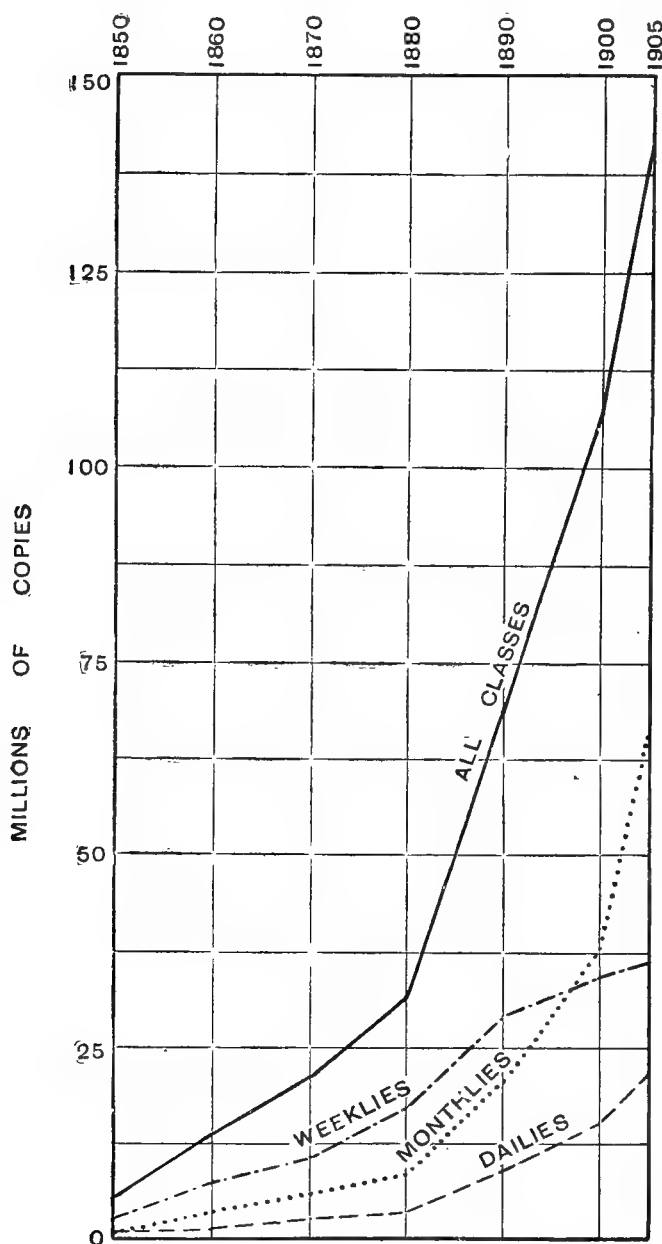
ures. Has not indeed the point been reached at which even these comparisons fail? Most of the newspapers of this period consist of two and three sheets, and an attempt to make an average size and lay such sheets end to end results in distances so vast that other comparisons would be required to make even the attempted illustration clear. The most effective comparison is obtained, therefore, by the use of a larger unit of measure. For example, the total number of pounds of white paper consumed in newspapers and periodicals is stated in Table 41. Upon the basis of the size and weight previously specified, the area which could be covered would approximate 5,000 square miles—an area greater than the entire state of Connecticut.

In the reports of the census of 1850 the following statement was made:

The whole issue for one year, estimated upon the basis of an ordinary country paper, would cover a surface of 100 square miles, or constitute a belt of 30 feet wide around the earth, and weigh nearly 70,000,000 pounds. The very heavy circulation of the northern cities is accounted for from the fact that these cities supply every section of the country, and more especially the Southern and Southwestern states which show such a small proportion of native papers. Unless the proper deductions are made, the newspaper statistics will not be a fair criterion in judging of the several sections, but no data exists in the Office for such corrections.¹

¹ Compendium, Tenth Census of the United States, page 159.

DIAGRAM 5.—Growth in circulation per issue of newspapers and periodicals: 1850 to 1905.



Circulation in 1810.—In contrast with the gigantic total which has been reached by newspapers and periodicals in the United States in their aggregate product for the census year, it will be interesting to observe that the earliest records of circulation which are available date back practically a century. In the Compendium of the Seventh Census a table was published, drawn from an almanac published in 1830, presenting the number of publications and their aggregate annual circulation for the year 1810. This table possesses peculiar interest, as it forms the earliest returns of any branch of industrial statistics possessing value.

TABLE 42.—Number and aggregate circulation of all classes of publications, by states: 1810.

STATE OR TERRITORY.	Number of papers.	Circulation.
Total.....	359	22,321,700
Connecticut.....	11	657,800
Delaware.....	2	166,400
District of Columbia.....	5	686,400
Georgia.....	13	707,200
Indiana.....	1	15,600
Kentucky.....	17	618,800
Louisiana.....	11	763,900
Maryland.....	21	1,903,200
Massachusetts.....	32	2,873,000
Mississippi.....	4	83,200
New Hampshire.....	12	624,000
New Jersey.....	8	332,800
New York.....	66	4,139,200
North Carolina.....	10	416,000
Ohio.....	14	473,200
Pennsylvania.....	71	4,542,200
Rhode Island.....	7	332,800
South Carolina.....	10	842,400
Tennessee.....	6	171,600
Vermont.....	14	682,400
Virginia.....	23	1,289,600

¹ Including Louisiana and Orleans territories.

Several of the states shown in the above table include within their limits territory which has since been erected into states. Of the total circulation here specified, half was contributed by the 3 states of Pennsylvania, New York, and Massachusetts (including the district of Maine), in the order mentioned. There is, of course, no evidence that these early figures were accurate, but upon the authority of the census of 1850 they may be accepted as an approximation, and they form a starting point from which it is possible to observe the increase in aggregate circulation which has occurred during a century of extraordinary industrial development. The increase in aggregate annual circulation from 1810 to 1905 has been more than four hundred fold, while for the 3 leaders in 1810—Pennsylvania, New York, and Massachusetts—it has been in excess of three hundred, five hundred, and two hundred fold, respectively.

In using these exceptionally early figures as a basis for striking comparison with the achievement of our own time, it must not be considered that any disparagement is intended to the results secured one hundred years ago. On the contrary, the returns for 1810 must be accepted as a remarkable evidence of the mental activity and intelligence of the American people of that period. A large portion of the Republic, even as then bounded, was unbroken wilderness. Communication between the most populous centers was slow and irregular; for example, between Hartford and Providence the stagecoach ran but twice a week. The printing press as we know it was not invented; the machine then in use from which the printed page was drawn was a hand affair, slow and tedious in operation. Moreover, paper was made by hand from rags and in consequence was expensive and difficult to obtain.

Under the circumstances, therefore, a circulation of more than 22,000,000 per annum represented a product about as creditable to that early period of the nation's history as the machine product numbered in billions is to the present period. It must be remembered that if the printers of the United States remained in possession of all the mechanical facilities which they enjoy at the present time, and confronted a reduction in population to that of 1810, the circulation per annum of American newspapers and periodicals upon the basis of population at the present time would amount to less than one-tenth of the actual returns. It is with such a figure as this that the returns for 1810 should be contrasted, and in view of the lack of facilities of all kinds the product a century since must be regarded

as highly creditable to the printers, publishers, and reading public of that period.

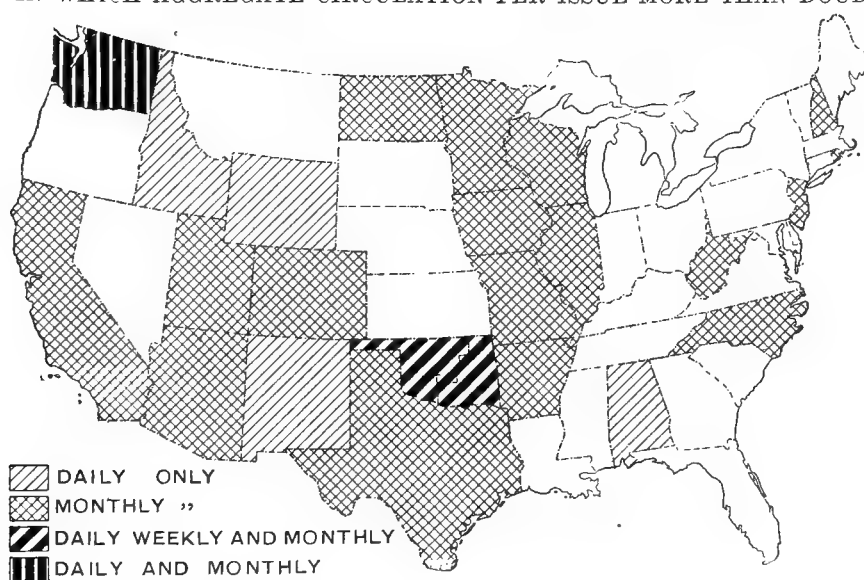
Circulation by geographic divisions.—The aggregate circulation per issue of all publications more than quadrupled from 1880 to 1905. This proportion of increase appeared with noteworthy uniformity in all geographic divisions.¹ In consequence, the wide variation in aggregate circulation in all classes contributed by the different divisions in 1880 have remained proportionately about the same. The North Atlantic division contributed in 1905 more than half of the entire circulation per issue shown for the United States, though proportionately somewhat less than that returned by the division in 1880.

¹ For details by states, see Table 76, page 786.

TABLE 43.—NEWSPAPERS AND PERIODICALS—AGGREGATE CIRCULATION PER ISSUE OF ALL CLASSES, WITH PER CENT OF INCREASE AND PER CENT WHICH CIRCULATION IN EACH DIVISION FORMS OF THE TOTAL, BY GEOGRAPHIC DIVISIONS: 1880 TO 1905.

DIVISION.	AGGREGATE CIRCULATION OF ALL CLASSES.				PER CENT OF INCREASE.			PER CENT OF TOTAL.			
	1905	1900	1890	1880	1900 to 1905	1890 to 1900	1880 to 1890	1905	1900	1890	1880
Continental United States.....	139,939,229	106,889,334	68,147,619	31,779,686	30.9	56.8	114.4	100.0	100.0	100.0	100.0
North Atlantic.....	75,034,744	58,167,439	36,216,698	18,533,003	29.0	60.6	95.4	53.6	54.4	53.1	58.3
South Atlantic.....	4,458,119	3,551,594	2,385,414	1,477,271	25.5	48.9	61.5	3.2	3.3	3.5	4.7
North Central.....	48,605,676	35,747,654	23,742,919	9,440,808	36.0	50.6	151.5	34.7	33.5	34.9	29.7
South Central.....	7,284,404	6,417,164	3,765,571	1,374,309	13.5	70.4	174.0	5.2	6.0	5.5	4.3
Western.....	4,556,286	3,005,483	2,037,017	954,295	51.6	47.5	113.5	3.3	2.8	3.0	3.0

MAP 16.—STATES IN WHICH AGGREGATE CIRCULATION PER ISSUE MORE THAN DOUBLED: 1900 TO 1905.



In the discussion of the capital and the value of products of the printing and publishing industry, it was shown that in 1905 the North Atlantic division contributed 50.3 per cent of the former, and 48.9 per cent of the latter, while the percentages shown for newspaper and periodical establishments by this group

of states were 48.3 and 48.4, respectively. The proportion of circulation thus proves to be roughly consistent. The small proportion reported by the South Atlantic division decreased slightly, and now forms but 32 copies in every 1,000 of total circulation per issue, compared with 35 in 1890 and 47 in 1880.

TABLE 44.—*Newspapers and periodicals—number of copies per issue to each inhabitant, by geographic divisions: 1880 to 1905.*

DIVISION.	1905	1900	1890	1880
Continental United States.....	1.7	1.4	1.1	0.6
North Atlantic.....	3.3	2.8	2.1	1.3
South Atlantic.....	0.4	0.3	0.3	0.2
North Central.....	1.7	1.4	1.1	0.5
South Central.....	0.5	0.5	0.3	0.2
Western.....	1.0	0.7	0.7	0.5

¹ Population for 1905 is that estimated by this Bureau as of June 1, 1904.

The number of copies per issue has increased at a more rapid rate than the population, so that in the twenty-five years that have elapsed since 1880 the ratio of circulation to inhabitants has almost trebled. The averages shown by the different sections of the country, however, vary from less than one-fourth of the average for the United States, in the South Atlantic division, to practically double that average in the North Atlantic.

Obviously, the North Atlantic division is the purveyor of many classes of newspapers and periodicals to the entire country. While it is probable that the inhabitants of this division are themselves the most liberal patrons of newspapers, since they are the most liberal producers, and the taking and reading of periodicals is to some extent a habit, yet it is improbable that the proportion consumed in this division bears any striking contrast to the proportion consumed in the other divisions.

Circulation by states and territories.—Between 1880 and 1890 only two of the entire number of states and territories showed a decline in circulation;¹ between 1890 and 1900, 6 showed a decline; and between 1900 and 1905 the number was again 6. The aggregate circulation per issue in 1905 now reaches an enormous figure, and the contribution by each state has become so large that a small percentage of increase represents a very large absolute advance. For example, in 1880 but 6 states reported an aggregate circulation for all classes in excess of 1,000,000 copies per issue, and only 2—New York and Pennsylvania—reported a total aggregate circulation in excess of 5,000,000 copies. In 1890, 14 states reported a circulation in excess of 1,000,000 copies, the circulation of 4 of these being in excess of 5,000,000 copies. In 1900 the number of states having an aggregate circulation in excess of 1,000,000 was 19, and of these 7 reported a circulation in excess of 5,000,000. Eighteen states reported an aggregate circulation in excess of 1,000,000 copies in 1905, 7 having a circulation in excess of 5,000,000; these states without exception were the same as in 1900.

As the circulation in New York in 1890 exceeded 18,000,000, a new class of states—those having a circulation in excess of 15,000,000 copies per issue—might be introduced in that year. In 1905, 2 other states—Pennsylvania and Illinois—had joined New York in the class producing in excess of 15,000,000.

¹ See Table 76, page 786.

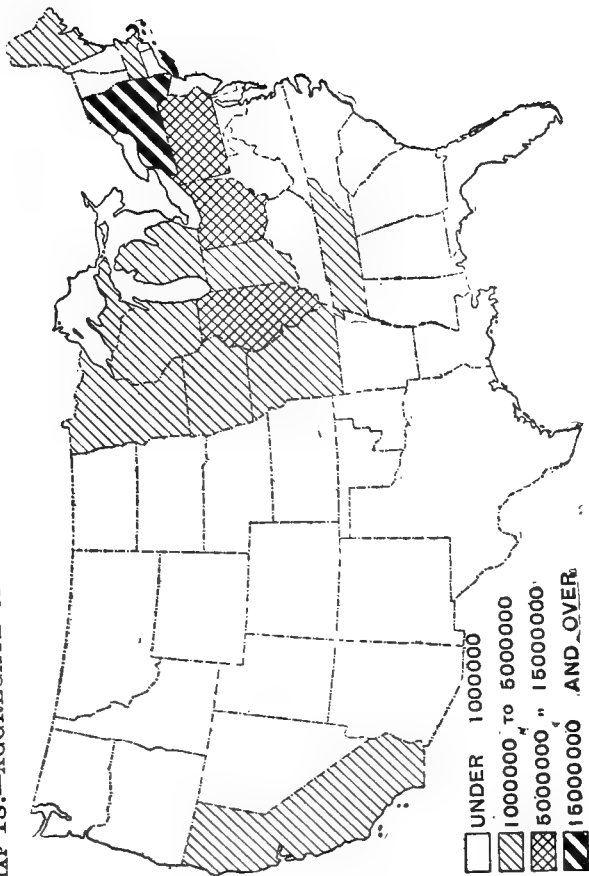
TABLE 45.—NEWSPAPERS AND PERIODICALS—AGGREGATE CIRCULATION PER ISSUE OF ALL CLASSES IN THE TEN LEADING STATES, WITH PER CENT EACH FORMS OF THE TOTAL CIRCULATION OF ALL CLASSES FOR THE UNITED STATES: 1880 TO 1905.

STATE.	AGGREGATE CIRCULATION PER ISSUE.				PER CENT OF TOTAL FOR THE UNITED STATES.			
	1905	1900	1890	1880	1905	1900	1890	1880
Total for 10 states.....	113,019,033	84,711,634	54,526,355	25,289,548	80.8	79.3	80.0	79.6
New York.....	39,840,329	30,216,095	18,031,391	9,374,134	28.5	28.3	26.5	29.5
Pennsylvania.....	17,768,097	11,280,367	9,472,083	5,031,061	12.7	10.6	13.9	15.8
Illinois.....	15,237,805	10,429,368	7,891,219	2,421,275	10.9	9.8	11.6	7.6
Ohio.....	8,815,754	7,467,358	5,639,781	3,093,931	6.3	7.0	8.3	9.8
Massachusetts.....	8,188,769	6,199,127	4,662,159	2,012,929	5.8	5.8	6.8	6.4
Missouri.....	7,247,505	5,495,802	2,615,135	965,285	5.2	5.1	3.8	3.0
Maine.....	6,935,104	6,434,065	2,442,046	1,214,460	4.9	6.0	3.6	3.8
Indiana.....	3,038,793	2,108,805	1,299,418	661,111	2.2	2.0	1.9	2.1
Tennessee.....	3,033,760	3,131,017	1,460,118	293,288	2.2	2.9	2.1	0.9
Minnesota.....	2,913,117	1,949,630	1,023,005	222,074	2.1	1.8	1.5	0.7

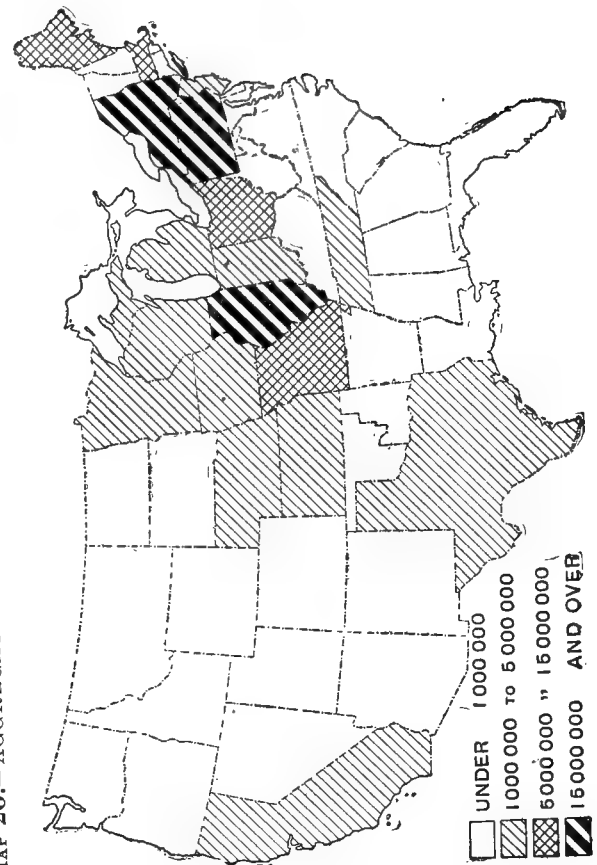
The tendency of the industry toward concentration in urban centers, and hence in the larger and more populous states, gains additional confirmation if the products of the 10 states having the largest aggregate circulation per issue of all classes of periodicals be combined. These states represent four-fifths of the entire circulation per issue in the United States. Furthermore, it is significant that the proportion which the aggregate circulation per issue reported for this group of states forms of the corresponding aggregate for the United States has slowly but almost continuously increased since 1880. Even within the 10 states which led in production, 3—New York, Pennsylvania,

and Illinois—contributed more than half of the total circulation per issue, yet these states together represent less than one-fourth of the entire estimated population of the United States in 1905. The maintenance of a very large product by the 10 leading states is not so important, however, as the fact that the other 40 states in the Union, with their great area, rapidly increasing population, and immense increase in manufacturing activity, have failed in the aggregate to make any serious advance in the proportion which they contribute to the aggregate circulation per issue of American newspapers and periodicals.

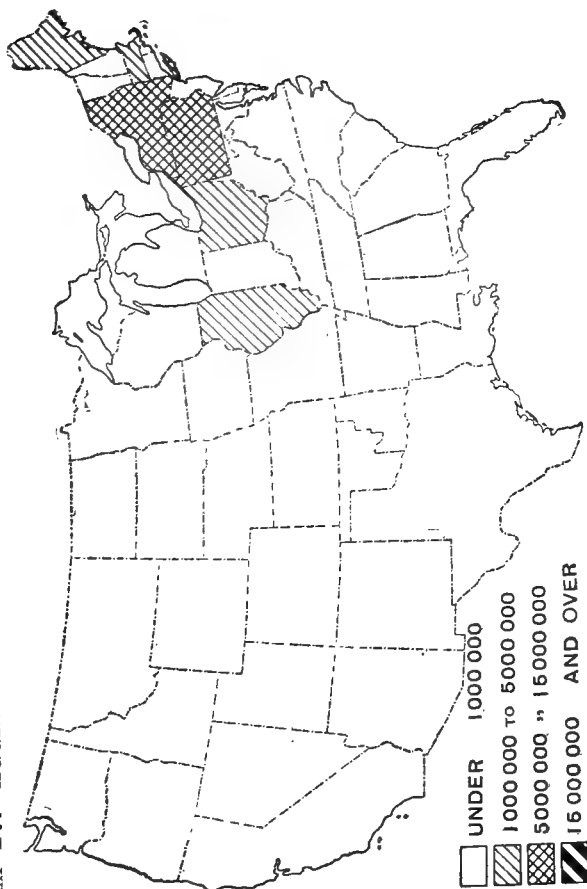
MAP 18.—AGGREGATE CIRCULATION PER ISSUE OF ALL CLASSES: 1890.



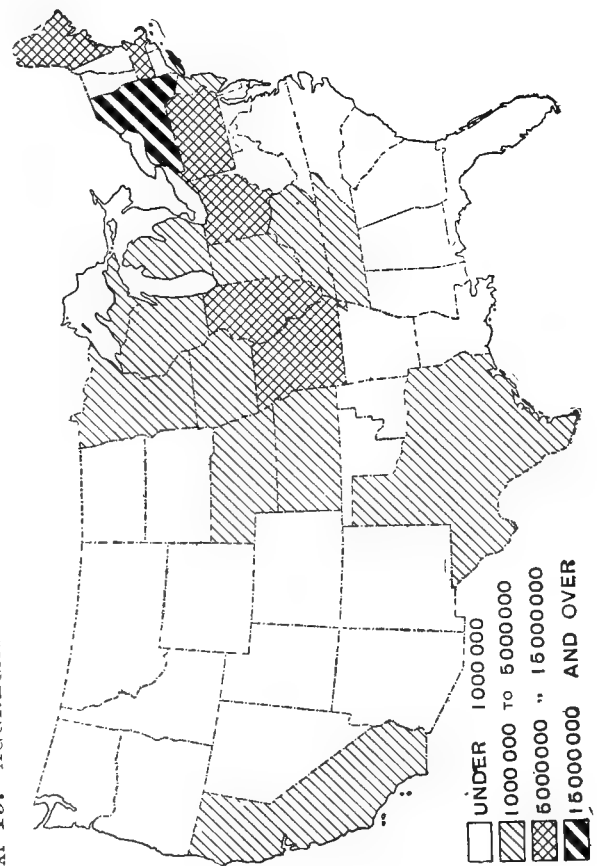
MAP 20.—AGGREGATE CIRCULATION PER ISSUE OF ALL CLASSES: 1905.



MAP 17.—AGGREGATE CIRCULATION PER ISSUE OF ALL CLASSES: 1880.



MAP 19.—AGGREGATE CIRCULATION PER ISSUE OF ALL CLASSES: 1900.



Among the 40 remaining states and territories, which contributed 19.2 per cent of the total circulation per issue, the tendency toward concentration of circulation product, which appears in the group of 10 states mentioned, does not exist. On the contrary, this remainder of circulation was contributed by the 40 states and territories with rather remarkable uniformity. Seventeen reported a product in excess of 500,000 copies per issue, and the remaining 23, though contributing less than 500,000 each, showed an average circulation of more than 200,000 copies per issue—a product which twenty-five years ago was regarded as a creditable output for most of the older and more populous states.

It is worthy of note that the 19.2 per cent contributed in 1905 by the 40 states and territories was equivalent to 84.7 per cent (or more than four-fifths) of the aggregate circulation per issue in 1880. The state which contributed the smallest product (Nevada) reported a circulation in 1905 in excess of that reported in 1880 by 3 states and territories combined, and the product of the 10 states and territories having the lowest product in 1905 was more than that of the 20 lowest states in 1880.

It is important to keep in mind the limitation which applies to the table presenting the 10 leading producers of all classes of circulation. The standard by which these are selected is the circulation contributed in 1905, and the returns shown for earlier censuses for these states thus indicate the advance which they have made, but do not necessarily include the largest producers during any census except the last. Upon inspection of the figures for all states at each preceding census to and including that of 1850, it will be found that 6 of the states which were among the first 10 in 1905 were also in that group at the earlier censuses and that 13 other states have at various times been among the first 10. The composition of this group of 10 leading states has therefore changed so slightly that during a period of 55 years the group has embraced but 19 different states. The percentages contributed by the 10 largest producers at each census were as follows:

	Per cent.
1905.....	80.8
1900.....	80.5
1890.....	80.7
1880.....	81.9
1870.....	85.2
1860.....	84.6
1850.....	82.6

The tendency shown by these figures is toward slightly less concentration.

Export circulation.—Prior to 1905 no information was secured by the Census concerning the circulation abroad of newspapers and periodicals published in the United States. There is therefore presented for the first time the export trade of publications of all classes.

The total circulation per issue beyond the boundaries of continental United States proves to be surprisingly

large, but statistics of this branch of circulation will become much more valuable when similar results are available for another census, so as to permit comparison of the increase or decrease of publications exported and the changes in state contributions.

TABLE 46.—*Newspapers and periodicals—foreign circulation, by states and territories: 1905.*

STATE OR TERRITORY.	Number of establishments reporting foreign circulation.	AGGREGATE CIRCULATION PER ISSUE.		
		Total foreign.	Canada.	All other countries.
Continental United States.....	3,716	1,905,210	1,002,685	902,525
Alabama.....	25	779	14	765
Arizona.....	27	2,590	75	2,515
Arkansas.....	22	223	50	173
California.....	180	34,676	9,417	25,259
Colorado.....	62	9,665	2,618	7,047
Connecticut.....	19	961	442	519
Delaware.....	7	472	46	426
District of Columbia.....	24	3,139	1,408	1,731
Florida.....	18	1,131	636	495
Georgia.....	31	792	135	657
Idaho.....	2	100		100
Illinois.....	302	136,025	94,166	41,859
Indian Territory.....	22	413	330	83
Indiana.....	76	16,537	10,022	6,515
Iowa.....	302	28,249	13,838	14,411
Kansas.....	90	6,693	4,338	2,355
Kentucky.....	71	1,949	1,136	813
Louisiana.....	8	339	50	289
Maine.....	36	26,942	26,726	216
Maryland.....	29	3,231	302	2,929
Massachusetts.....	87	206,366	183,909	22,457
Michigan.....	141	43,502	34,809	8,693
Minnesota.....	264	25,319	18,110	7,209
Mississippi.....	9	63		63
Missouri.....	155	37,365	23,543	13,822
Montana.....	34	893	539	354
Nebraska.....	126	5,533	1,761	3,772
Nevada.....	3	9	8	6
New Hampshire.....	21	1,739	1,262	477
New Jersey.....	27	4,079	2,794	1,285
New Mexico.....	20	1,017	34	983
New York.....	451	1,042,438	368,190	674,248
North Carolina.....	30	439	96	343
North Dakota.....	84	3,270	2,717	553
Ohio.....	135	46,225	35,306	10,919
Oklahoma.....	43	1,076	268	808
Oregon.....	44	5,530	4,273	1,257
Pennsylvania.....	186	148,946	119,704	29,242
Rhode Island.....	16	880	610	270
South Carolina.....	18	369	15	354
South Dakota.....	72	2,887	1,871	1,016
Tennessee.....	28	1,490	453	1,037
Texas.....	81	6,659	188	6,471
Utah.....	14	2,020	822	1,198
Vermont.....	11	726	622	104
Virginia.....	38	3,714	539	3,175
Washington.....	70	3,352	3,053	299
West Virginia.....	32	863	361	502
Wisconsin.....	117	33,482	30,967	2,515
Wyoming.....	5	53	27	26

One-fifth of the total number of newspaper and periodical establishments in the United States make some contribution to the total export of periodicals. The states and territories of whose foreign circulation of newspapers and periodicals per issue more than half goes to Canada, and those which export more to other foreign countries, are about evenly divided; but, as might be expected, the states which export more largely to Canada are, in general, those lying along the Canadian border.

New York presents the most interesting study in connection with the exportation of newspapers and periodicals, having contributed more than one-half of the total circulation exported. Of this state's foreign circulation, nearly two-thirds goes to foreign countries other than Canada; yet, although the Canadian circu-

lation formed so small a proportion of the whole, it is larger than that of any state in which Canadian circulation preponderates.

Of the circulation of American publications sent abroad in 1905, 80.5 per cent was contributed by the 4 states of New York, Massachusetts, Pennsylvania, and Illinois. In the character of this foreign circulation, however, there is a marked contrast between New York and the other 3 states mentioned. As stated above, nearly two-thirds of the foreign circulation of New York goes to countries other than Canada; for none of the other 3 states does the corresponding proportion reach one-third.

The large circulation in Canada of newspapers and magazines published in the United States, here measured for the first time, suggests that they must exert a decided influence upon the thought and public opinion of the citizens of Canada. Bearing in mind the fact that the population of the Dominion at the present time is approximately 5,000,000, the circulation of American periodicals as shown in 1905 is thus one copy per issue to every 5 inhabitants. If the population of Canada were as large as that of the United States, this would be equivalent to a circulation of more than 16,000,000 copies per issue.

Unfortunately the census of Canada does not report the number and circulation of newspapers and periodicals. From other sources,¹ however, the total circula-

tion of Canadian publications may be approximately computed. In 1905 there were in all 1,058 newspapers and periodicals of all classes published in the Dominion of Canada. The total circulation of these periodicals was approximately 2,650,000 copies per issue, thus indicating that the newspapers and periodicals received in the Dominion from the United States equal 37.8 per cent of the entire circulation per issue of Canadian publications. In other words, in the total newspaper and periodical circulation in Canada there are approximately two publications received from the United States to every five published in the Dominion.

Character.—In previous census statistics concerning this industry, no attempt was made to determine the aggregate circulation per issue of publications by character of publication. It is clear that such an analysis must possess increasing importance. It is therefore presented in this report.²

Of the thirteen groups into which publications are divided according to their character, six reported in 1905 a circulation per issue in excess of 5,000,000, and their combined circulation was 89.4 per cent of the total for the United States. Publications devoted to news, politics, and family reading represented in 1905 the largest proportion of the total circulation, and this group was followed by publications devoted to general literature and those devoted to religious subjects.

¹ Rowell's American Newspaper Directory, 1905.

² See Table 78, page 798.

TABLE 47.—NEWSPAPERS AND PERIODICALS—DISTRIBUTION OF PUBLICATIONS HAVING AN AGGREGATE CIRCULATION PER ISSUE OF 5,000,000, CLASSIFIED BY CHARACTER, BY GEOGRAPHIC DIVISIONS: 1905.

DIVISION.	NEWS, POLITICS, AND FAMILY READING.		RELIGIOUS.		AGRICULTURAL, HORTICULTURAL, DAIRYING, STOCK RAISING, ETC.		GENERAL LITERATURE, INCLUDING MONTHLY AND QUARTERLY MAGAZINES.		FRATERNAL ORGANIZATIONS.		SOCIETY, ART, MUSIC, FASHION, ETC.	
	Circulation per issue.	Per cent distribution.	Circulation per issue.	Per cent distribution.	Circulation per issue.	Per cent distribution.	Circulation per issue.	Per cent distribution.	Circulation per issue.	Per cent distribution.	Circulation per issue.	Per cent distribution.
Continental States.....	43,285,399	100.0	22,383,631	100.0	8,106,275	100.0	30,615,577	100.0	5,356,427	100.0	15,289,431	100.0
North Atlantic.....	15,744,908	36.4	9,653,954	43.1	2,140,932	26.4	23,728,584	77.5	1,478,625	27.6	15,078,426	98.6
New England.....	3,076,101	7.1	1,114,658	5.0	159,565	2.0	9,177,723	30.0	373,700	10.7	1,440,716	9.4
Southern North Atlantic.....	12,668,807	29.3	8,539,296	38.1	1,981,367	24.4	14,550,861	47.5	904,925	16.9	13,637,710	89.2
South Atlantic.....	2,565,478	5.9	808,326	3.6	208,330	2.6	15,000	0.1	324,475	6.1	16,010	0.1
North Central.....	18,651,995	43.1	9,003,618	40.2	4,993,286	61.6	6,472,043	21.1	3,109,471	58.0	163,245	1.1
South Central.....	3,512,812	8.1	2,675,679	12.0	514,391	6.3	79,950	0.3	138,185	2.6	8,600	0.1
Western.....	2,810,206	6.5	242,054	1.1	249,336	3.1	320,000	1.0	305,671	5.7	23,150	0.1

When the statistics for the six classes which had over 5,000,000 copies per issue are considered by geographic divisions, in most cases a pronounced tendency toward localization appears. This is due in part to the fact that publications naturally follow centers of interest, and in part to the prominence which periodicals, and thus sections of the country, secure because most satisfactorily voicing the sentiment of readers, wherever located, upon special topics.

The North Atlantic division contributed over three-fourths of the circulation of publications devoted to

general literature, society, art, music, and fashion, while the North Central division contributed between half and two-thirds of the circulation of publications devoted to fraternal organizations, agriculture, horticulture, dairying, and stock raising. This distribution obviously reflects the existence of interests which are of especial consequence in the two great geographic divisions mentioned.

Moreover, for some classes of publications concentration in certain states is observable.¹ For example,

¹ For distribution by states, see Table 78, page 798.

5 states contributed three-fifths of the total circulation of publications devoted to fraternal organizations; 2 states contributed practically the entire output of publications devoted to society, art, and fashion; 4 states, practically all contiguous, contributed three-fourths of the circulation of religious publications; and 6 states contributed nine-tenths of the general literature. On the other hand, the 5 most generous contributors to the circulation of publications devoted to news, politics, and family reading, and to agriculture, horticulture, and similar subjects, contributed scarcely more than half the total circulation of publications of the same class; this indicates a tendency to wide dissemination of publications devoted to such topics.

Period of issue.—It must be remembered, in the discussions which follow, that the relative weight of the changes there pointed out are materially altered when the number of copies issued in the year is considered.

The circulation of the semiweekly, which is unimportant per issue, becomes of much greater relative importance when it is considered in the aggregate for the year, since in determining this aggregate the circulation per issue must be multiplied by 104. Thus the distribution of aggregate annual circulation into the three classes—daily, weekly, and monthly—shows the daily contributing much the largest proportion—more than two-thirds, in fact, of the aggregate circulation, since the daily is multiplied by over 300, as compared with a multiplication by 12 for the monthly.

TABLE 48.—*Newspapers and periodicals—numerical and per cent distribution of aggregate number of copies issued during the census year, with per cent of increase: 1905 and 1900.*

PERIOD OF ISSUE.	CENSUS.		Per cent of increase.	PER CENT OF TOTAL.	
	1905	1900		1905	1900
Total	10,325,143,188	7,856,028,749	31.4	100.0	100.0
Daily	7,181,616,774	5,176,542,700	38.7	69.5	65.9
Weekly	1,910,065,924	1,790,586,704	7.3	18.5	22.7
Monthly	771,673,860	454,438,704	69.8	7.5	5.8
All other	401,786,630	444,400,581	3.9	4.5	5.6

The daily, with an aggregate circulation per issue much less than that of the weekly and about one-third that of the monthly, contributed much the largest number of copies during the year—amounting in 1900 to 68 copies per capita and in 1905 to 88 copies per capita, as compared with 23 in 1900 and 24 in 1905 for the

weekly, and 6 and 9, respectively, for the monthly. These results necessarily conflict with those for circulation per issue, since relative importance is governed by frequency of issue, but the statistical value of returns for circulation unquestionably depends principally upon what each class of publication is doing within its own sphere. This may be illustrated by the fact that a publication possesses life only until the next issue appears. Of the daily, enough copies are issued to supply every inhabitant in the United States with one every fourth issue; of the weekly, enough copies are issued to supply every inhabitant with a weekly paper every other issue. The circulation of these two classes is thus sufficient to supply every inhabitant with a daily newspaper one-fourth of the year, and with a weekly one-half of the year. In the case of the monthly the circulation is sufficient to supply a complete issue to each inhabitant for three-fourths of the year.

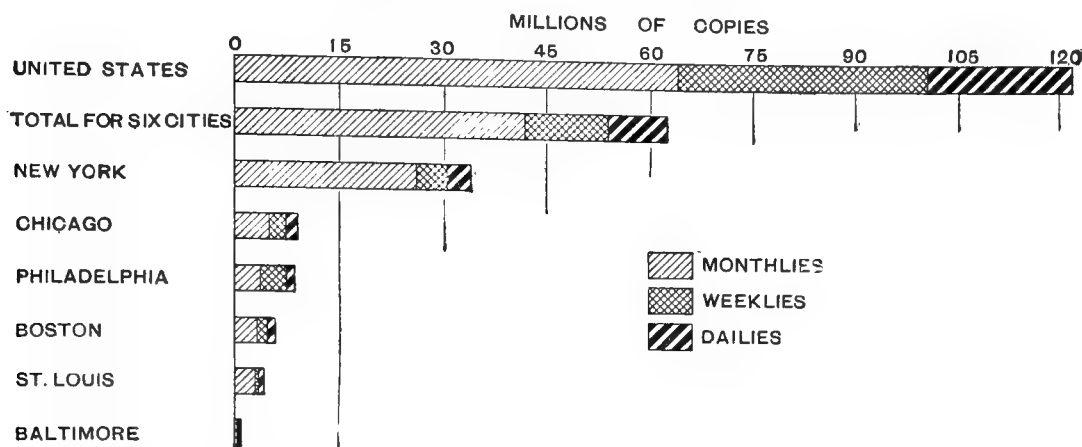
The three most important classes of publications are the daily, weekly, and monthly, and these together contributed over four-fifths of the total circulation of all publications in 1905.

TABLE 49.—*Newspapers and periodicals—aggregate circulation per issue of monthlies, weeklies, and dailies, with per cent of increase: 1850 to 1905.*

YEAR.	MONTHLIES.		WEEKLIES.		DAILIES.	
	Aggregate circulation per issue.	Per cent of increase.	Aggregate circulation per issue.	Per cent of increase.	Aggregate circulation per issue.	Per cent of increase.
1905.....	64,306,155	69.8	36,732,037	7.3	21,079,130	39.6
1900.....	37,869,897	103.3	34,242,052	18.3	15,102,156	80.1
1890.....	18,632,723	128.9	23,954,515	78.0	8,387,188	135.2
1880.....	8,139,881	44.0	16,266,830	53.5	3,566,395	37.1
1870.....	5,650,843	65.6	10,594,643	39.7	2,601,547	76.0
1860.....	3,411,959	360.7	7,581,930	157.5	1,478,435	94.9
1850.....	740,651	.....	2,944,629	.....	758,454	.....

The changes which have occurred in the daily and the weekly classes may be regarded as merely the result of a normal increase in aggregate circulation per issue. Both of these classes have shown uninterrupted increase from decade to decade, and although the rate of increase has varied somewhat, it has never fallen below one-third in the daily class from 1850 to 1905, nor in the weekly class from 1850 to 1890. From 1890 to 1905, however, the aggregate circulation per issue of the weekly showed a decided falling off in the rate of increase—a change which is entirely in harmony with the tendency of the times.

DIAGRAM 6.—AGGREGATE CIRCULATION PER ISSUE OF DAILIES, WEEKLIES, AND MONTHLIES IN CITIES OF 500,000 POPULATION OR OVER: 1905.



The circulation of monthly publications far outstrips the others in percentage of increase and in aggregate circulation per issue. The monthly indeed at present offers the most interesting field for statistical analysis.

No better illustration of the increase in circulation can be found than a comparison of the number of inhabitants to each copy per issue in the three main classes of publications. In 1880 there was published a daily newspaper to every 14 persons in the United States. This proportion steadily changed until in 1905 there was 1 daily to every 4 persons. The relation

of the weekly to population has been practically stationary. In 1880 there was 1 weekly publication to every 3.1 inhabitants; in 1890, in 1900, and in 1905, 1 to every 2.2 inhabitants. The proportion of monthlies, however, has changed strikingly; it is now almost five times as great as in 1880, having increased from 1 monthly publication to every 6.2 persons in 1880 to 1 for every 1.3 in 1905. From these figures it is evident that in the proportion of circulation to population the monthly is fast outstripping all other classes.

TABLE 50.—NEWSPAPERS AND PERIODICALS—NUMBER, CIRCULATION PER ISSUE, AND AGGREGATE NUMBER OF COPIES ISSUED DURING THE CENSUS YEAR, BY PERIOD OF ISSUE: 1850 TO 1905.

CENSUS.	ALL CLASSES.			DAILY.		TRIWEEKLY.		SEMIWEEKLY.		WEEKLY.		MONTHLY.		QUARTERLY.		ALL OTHER CLASSES. ¹	
	Number reporting.	Total circulation per issue.	Aggregate number of copies issued during the census year.	Number.	Total circulation per issue.	Number.	Total circulation per issue.	Number.	Total circulation per issue.	Number.	Total circulation per issue.	Number.	Total circulation per issue.	Number.	Total circulation per issue.	Number.	Total circulation per issue.
1905.....	21,394	139,939,229	10,225,143,188	2,452	21,079,130	58	296,194	645	2,937,464	15,046	36,732,037	2,500	64,306,155	353	11,709,655	340	2,878,594
1900.....	18,226	106,889,334	7,856,028,749	2,226	15,102,156	62	228,610	637	2,832,868	12,979	34,242,052	1,817	37,869,897	237	11,067,422	268	5,546,329
1890.....	14,901	68,147,619	4,669,217,750	1,610	8,387,188	34	50,067	194	561,743	10,814	28,954,515	1,734	18,632,723	225	8,124,500	290	3,436,883
1880.....	11,314	31,779,686	2,067,848,209	971	3,566,395	73	68,086	133	264,910	8,633	16,266,830	1,167	8,139,881	116	1,964,049	221	1,359,535
1870.....	5,871	20,842,475	1,508,548,250	574	2,601,547	107	155,105	115	247,197	4,295	10,594,643	622	5,650,843	49	211,670	109	1,381,470
1860.....	4,051	13,663,409	927,951,548	387	1,478,435	86	107,170	79	175,165	3,173	7,581,930	280	3,411,959	30	101,000	.....	.....
1850.....	2,526	5,142,177	426,409,978	254	758,454	115	75,712	31	53,511	1,902	2,944,629	100	740,651	19	25,875	100	495,945

¹ Includes publications issued biweekly, bimonthly, semi-monthly, etc.

² Obtained for each class of publication by multiplying the average circulation for each issue by the number of issues during the year.

³ The circulation of 5 weeklies, 1 semi-weekly, 14 monthlies, and 12 quarterlies, not reported separately, amounting to 150,000, is given only for "all classes."

⁴ Circulation for 16 publications, amounting to 807,750, is given only for "all classes."

⁵ Circulation for 5 publications, amounting to 47,500, is given only for "all classes."

TABLE 51.—NEWSPAPERS AND PERIODICALS—AVERAGE CIRCULATION PER ISSUE, BY PERIOD OF ISSUE: 1850 TO 1905.

Year.	All classes.	Daily.	Triweekly.	Semiweekly.	Weekly.	Monthly.	Quarterly.
1905.....	6,541	8,597	5,107	4,554	2,441	25,722	33,172
1900.....	5,865	6,784	3,687	4,447	2,638	20,842	46,698
1890.....	4,573	5,209	1,473	2,896	2,678	10,746	36,109
1880.....	2,809	3,673	933	1,992	1,884	6,975	16,931
1870.....	3,550	4,532	1,450	2,150	2,467	9,085	4,320
1860.....	3,373	3,820	1,246	2,217	2,390	12,186	3,367
1850.....	2,036	2,986	658	1,726	1,548	7,407	1,362

If the changes in circulation of the principal classes of publication be considered from the standpoint of average circulation, the most conspicuous increase, as

might be expected from the facts already presented, is generally in the monthly class. In a period of slightly more than half a century the average circula-

tion of all classes of publications has approximately tripled. This proportion holds good in the daily class, but not in the weekly, where the average increase per issue amounts to a little more than one-half. In the monthly class, however, the average for 1905 is considerably more than three times that for 1850.

The relation of proportion of total number of publications in each class to proportion of total circulation is naturally of greatest interest for the three main classes—daily, weekly, and monthly. In the case of

the daily class the proportions of each are roughly the same in 1905 as they were in 1850, though showing some intermediate change. The weekly, which contributed three-fourths of all publications and more than half of all circulation in 1850, in 1905 still contributed nearly three-fourths of the publications, but only one-fourth of the circulation, while the monthly, reporting a small proportion of each in 1850, in 1905 still contributed but a small part of the publications, but nearly half the total circulation.

TABLE 52.—NEWSPAPERS AND PERIODICALS—PER CENT DISTRIBUTION OF NUMBER AND AGGREGATE CIRCULATION PER ISSUE, BY PERIOD OF ISSUE: 1850 TO 1905.

PERIOD OF ISSUE.	1905		1900		1890		1880		1870		1860		1850	
	Num-ber.	Aggre-gate cir-culation per issue.	Num-ber.	Aggre-gate cir-culation per issue.	Num-ber.	Aggre-gate cir-culation per issue.	Num-ber.	Aggre-gate cir-culation per issue.	Num-ber.	Aggre-gate cir-culation per issue.	Num-ber.	Aggre-gate cir-culation per issue.	Num-ber.	Aggre-gate cir-culation per issue.
Total.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	² 100.0	² 100.0	³ 100.0	³ 100.0
Daily.....	11.5	15.1	12.2	14.1	10.8	12.3	8.6	11.2	9.8	12.5	10.0	10.8	10.1	14.7
Triweekly.....	0.3	0.2	0.3	0.2	0.2	0.1	0.6	0.2	1.8	0.8	2.1	0.8	4.6	1.5
Semiweekly.....	3.0	2.1	3.5	2.7	1.3	0.8	1.2	1.0.8	2.0	1.2	2.0	1.3	1.2	1.0
Weekly.....	70.3	26.2	71.2	32.0	72.6	42.5	76.3	¹ 51.2	73.2	50.8	78.3	55.5	75.3	57.3
Monthly.....	11.7	46.0	10.0	35.4	11.6	27.4	10.3	¹ 25.6	10.6	27.1	6.9	25.0	4.0	14.4
Quarterly.....	1.6	8.4	1.3	10.4	1.5	11.9	1.0	¹ 6.2	0.8	1.0	0.7	0.7	0.8	0.5
All other classes.....	1.6	2.0	1.5	5.2	2.0	5.0	2.0	4.3	1.8	6.6	.....	5.9	4.0	10.0

¹ The circulation of 5 weeklies, 1 semiweekly, 14 monthlies, and 12 quarterlies, not reported separately, amounting to 150,000, is given only for "all classes."

² Circulation for 16 publications, amounting to 807,750, is given for "all classes."

³ Circulation for 5 publications, amounting to 47,500, is given only for "all classes."

TABLE 53.—Newspapers and periodicals—rank of states and territories, by aggregate circulation per issue: 1905.

STATE OR TERRITORY.	All classes.	Dailies.	Week-lies.	Month-lies.
New York.....	1	1	1	1
Pennsylvania.....	2	2	2	4
Illinois.....	3	3	3	3
Ohio.....	4	5	4	7
Massachusetts.....	5	4	6	5
Missouri.....	6	6	5	6
Maine.....	7	31	31	2
Indiana.....	8	9	11	9
Tennessee.....	9	19	16	19
Minnesota.....	10	10	8	10
Michigan.....	11	8	14	8
Iowa.....	12	11	7	11
California.....	13	7	15	12
Wisconsin.....	14	12	10	13
Nebraska.....	15	20	12	15
Kansas.....	16	24	9	18
Texas.....	17	15	13	20
New Jersey.....	18	13	18	17
Kentucky.....	19	23	17	22
Colorado.....	20	17	21	16
Virginia.....	21	26	20	21
Georgia.....	22	21	19	24
District of Columbia.....	23	27	30	14
Maryland.....	24	14	25	23
Washington.....	25	18	26	25
North Carolina.....	26	32	22	31
Connecticut.....	27	16	27	29
Oregon.....	28	29	35	26
Louisiana.....	29	25	34	37
Oklahoma.....	30	34	24	33
Alabama.....	31	28	29	41
Arkansas.....	32	38	23	30
West Virginia.....	33	30	28	39
South Dakota.....	34	44	32	28
New Hampshire.....	35	36	37	27
North Dakota.....	36	45	33	35
Rhode Island.....	37	22	45	34
South Carolina.....	38	40	38	42
Mississippi.....	39	42	36	43
Utah.....	40	37	43	32
Florida.....	41	35	41	36
Vermont.....	42	39	39	38
Montana.....	43	33	42	44
Indian Territory.....	44	46	40	46
Idaho.....	45	47	44	48
Delaware.....	46	41	47	45
Wyoming.....	47	49	49	40
Arizona.....	48	43	48	47
New Mexico.....	49	48	46	.....
Nevada.....	50	50	50	.....





THE DAILY.

In 1905 the daily newspaper responded to conditions differing greatly from those that existed in 1850 and for many years thereafter. As late as 1880 crude mechanical appliances permitted but slow production, and transportation facilities were poor in comparison with those of the present period. The circulation of the daily was thus necessarily confined to a limited area in proximity to the publishing office. These drawbacks have in large measure disappeared. With improved transportation facilities the daily has extended the area from which it draws patronage 200 or 300 miles, and thus possesses in this period what might be termed a much greater "radius of action." Furthermore, within twenty years the revolution in mechanical production has resulted in changes so far-reaching that they also influence greatly the weekly and the monthly. The daily, however, because most frequently issued, is most responsive to mechanical changes. The practical adaptation of typesetting machines to the needs of daily papers has enabled publishers to increase the amount of type set without increasing expense, and to avoid the constant replenishment of expensive material.

In 1900 typesetting machines were found in the offices of all the larger dailies and some of the smaller ones. In 1905 their use had extended to nearly all daily newspapers wherever located, and to many other classes of publications.

DIVISION.	AGGREGATE CIRCULATION PER ISSUE.				PER CENT OF INCREASE.			PER CENT OF TOTAL.			
	1905	1900	1890	1886	1900 to 1905	1890 to 1900	1886 to 1890	1905	1900	1890	1886
Continental United States.....	21,079,130	15,102,156	8,387,188	3,566,395	39.6	80.1	135.2	100.0	100.0	100.0	100.0
North Atlantic.....	10,683,213	7,025,061	4,242,492	2,027,065	40.1	79.7	109.3	50.7	50.5	50.6	56.8
South Atlantic.....	979,615	712,873	417,278	267,299	37.4	70.8	56.1	4.7	4.7	5.0	7.5
North Central.....	7,085,285	5,194,529	2,669,904	890,330	36.4	94.6	199.9	33.6	34.4	31.8	25.0
South Central.....	977,868	706,091	443,185	151,739	38.5	59.3	192.1	4.6	4.7	5.3	4.3
Western.....	1,353,149	863,602	614,329	229,962	56.7	40.6	167.1	6.4	5.7	7.3	6.4

An attempt was made at this census to report separately the Sunday issue of daily papers, but this was found to be impracticable because such a segregation would disarrange the aggregate circulation per issue of the daily paper in the same way as the separate tabulation of any other day of the week. It is interesting, however, to observe that the Sunday edition of dailies in 1905 amounted to 11,539,021 per issue, contributed by 456 papers.

 UNDER 25 PER CENT
 25 TO 50 " "
 50 AND OVER
 60 AND OVER

¹Twelfth Census, Manufactures, Part III, page 1044.

TABLE 55.—NEWSPAPERS AND PERIODICALS—AGGREGATE CIRCULATION PER ISSUE OF DAILIES IN THE TEN LEADING STATES, WITH PER CENT OF TOTAL DAILY CIRCULATION FOR THE UNITED STATES: 1880 TO 1905.

STATE.	AGGREGATE CIRCULATION PER ISSUE.				PER CENT OF TOTAL FOR THE UNITED STATES.			
	1905	1900	1890	1880	1905	1900	1890	1880
Total for 10 states.....	16,590,335	11,921,621	6,467,601	2,786,950	78.7	78.9	77.1	78.1
New York.....	4,695,885	3,896,967	2,119,101	996,561	22.3	25.8	25.3	27.9
Pennsylvania.....	3,676,999	1,917,426	1,241,514	578,227	17.4	12.7	14.8	16.2
Illinois.....	2,013,115	1,449,087	774,486	270,923	9.6	9.6	9.2	7.6
Massachusetts.....	1,458,967	1,130,820	445,781	280,399	6.9	7.5	5.3	7.9
Ohio.....	1,376,460	1,224,715	499,712	216,336	6.5	8.1	6.0	6.1
Missouri.....	1,136,174	810,492	428,094	122,660	5.4	5.4	5.1	3.4
California.....	689,779	475,596	399,454	157,814	3.3	3.1	4.8	4.4
Michigan.....	549,383	370,848	212,975	62,839	2.6	2.5	2.5	1.8
Indiana.....	535,740	345,404	166,051	72,698	2.5	2.3	2.0	2.0
Minnesota.....	457,833	300,266	180,433	28,493	2.2	2.0	2.2	0.8

Attention has already been called to the concentration of four-fifths of the aggregate circulation per issue of all classes in 10 states. It is significant that the 10 states contributing the largest daily circulation are the same as those noted for the total circulation, with the exception of the substitution of California and Michigan for Maine and Tennessee. Furthermore, the proportion contributed to total daily circulation by the 10 states was practically the same as the proportion contributed by the 10 largest producers to aggregate circulation. It appears, also, that the proportion for daily circulation remains practically unchanged, since it has varied but six-tenths of 1 per cent in twenty-five years. Within the group, however, one marked change has occurred; the proportion of aggregate daily circulation contributed by the leader, New York, has shown a decided decrease since 1880.

MAP 22.—Ten states having greatest aggregate circulation per issue of dailies: 1905.



The 10 states which proved to be the largest producers of daily circulation in 1905 have contributed practically the same proportion of the total circulation since 1850. In that year their aggregate formed 75.1 per cent of the total. If, however, the 10 largest producers of daily circulation at each census be selected, it is evident that an interesting evolution in decentralization has been in progress, since a decline appears in the proportion which the total daily circulation

reported by such states bears to the aggregate for the United States. The proportion contributed at each census was as follows:

	Per cent.
1905.....	78.7
1900.....	78.9
1890.....	77.1
1880.....	81.1
1870.....	82.0
1860.....	84.9
1850.....	90.5

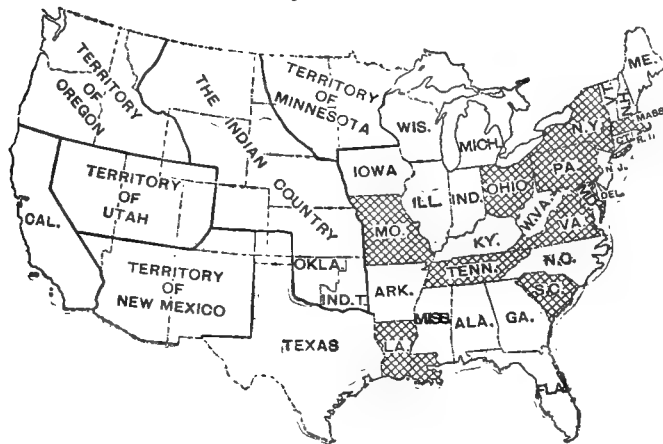
Four states prominent in all classes of newspaper and periodical production—New York, Pennsylvania, Massachusetts, and Ohio—were numbered among the leaders at every census during the fifty-five year period: and the total number of states which were included among the 10 leaders at any census from 1850 to 1905 was but 16.

In 1850, the 10 leading states contributed 90.5 per cent of the total. These states, in order of importance of product, were New York, Pennsylvania, Massachusetts, Maryland, Ohio, Louisiana, South Carolina, Virginia (including West Virginia), Tennessee, and Missouri. To supply 91.5 per cent, in 1905, 21 states were required, or practically half of the total number.

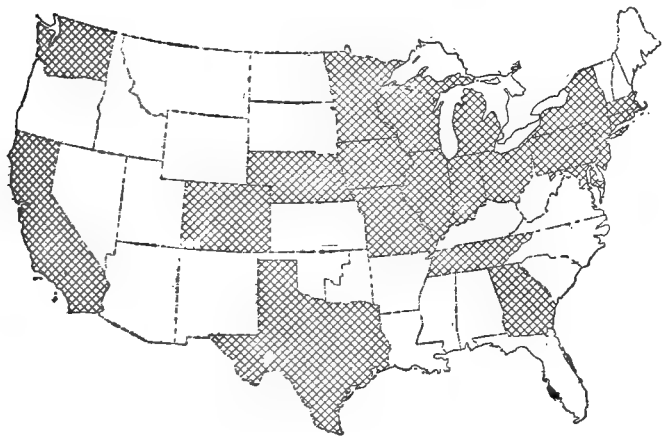
The remarkable change which has occurred in daily circulation in fifty-five years is further illustrated by the fact that in 1850 the remaining 9.5 per cent was concentrated in 14 states, including the District of Columbia, so that the entire daily circulation of the United States was contributed by 24 of the 36 (including the District of Columbia) states and territories. The states which possessed no daily newspapers in 1850 were Arkansas, Delaware, Florida, Iowa, Mississippi, New Hampshire, North Carolina, and Texas, and all the territories then organized—Minnesota, New Mexico, Oregon, and Utah. In 1905 the total daily circulation per issue in the states and territories which contributed none in 1850 was 1,446,686. There are 17 states and territories which have been created since 1850 out of territory not then organized or forming part of the 4 territories then existing. These 17 states and territories contributed, in 1905, 1,575,995 aggregate daily

circulation per issue. It would be difficult to offer a more vivid illustration of the changes which have been in progress during half a century.

MAP 23.—States contributing 90.5 per cent of total circulation per issue of dailies: 1850.



MAP 24.—States contributing 91.5 per cent of total circulation per issue of dailies: 1905.



Circulation contributed by large cities.—As might be expected from its preeminence in population, New York reported in 1905 more than double the number of daily papers contributed by any other city, the total number being evenly divided between morning and evening papers.

Three cities (Cincinnati, Newark, and Louisville) out of the 26 specified in the table, or practically one-eighth of the total number, reported a decrease in circulation from 1900 to 1905, as compared with but 1 (Jersey City) from 1890 to 1900. The decrease in at least 2 of these cities is directly attributable to the increasing circulation secured by daily papers published in larger near-by cities—a tendency which has been noted in previous reports, and which seems likely to increase.

TABLE 56.—Newspapers and periodicals—number, classified as morning and evening editions, and aggregate and average circulation per issue of dailies, for twenty-six leading cities: 1880 to 1905.

CITY.	Census.	NUMBER.			Aggregate circulation per issue.	Average circulation per issue.
		Total.	Morn-ing.	Even-ing.		
New York, N. Y.	1905	75	37	38	3,492,189	46,563
	1900	58	29	29	2,732,089	47,105
	1890	55	34	21	1,781,001	32,382
	1880	33	20	13	814,380	24,678
Chicago, Ill.	1905	34	11	23	1,630,914	47,968
	1900	37	16	21	1,099,555	29,718
	1890	27	14	13	644,000	23,852
	1880	18	10	8	220,577	12,254
Philadelphia, Pa.	1905	21	12	9	1,396,797	66,514
	1900	21	10	11	1,008,752	48,036
	1890	24	13	11	804,008	33,500
	1880	24	13	11	375,274	15,636
St. Louis, Mo.	1905	15	10	5	584,239	38,949
	1900	13	7	6	373,030	28,695
	1890	15	9	6	288,525	15,902
	1880	9	8	1	99,364	11,040
Boston, Mass.	1905	14	6	8	1,061,314	75,808
	1900	16	8	8	761,039	47,565
	1890	12	5	7	466,471	38,873
	1880	11	6	5	221,315	20,120
Baltimore, Md.	1905	11	7	4	273,702	24,882
	1900	9	6	3	232,252	25,806
	1890	7	6	1	133,510	19,073
	1880	9	6	3	128,643	14,294
Cleveland, Ohio.	1905	13	4	9	343,576	26,429
	1900	11	3	8	258,473	23,498
	1890	13	4	9	133,800	10,292
	1880	8	2	6	48,730	6,091
Buffalo, N. Y.	1905	11	2	9	288,828	26,257
	1900	12	3	9	217,989	18,166
	1890	10	3	7	120,900	12,080
	1880	7	2	5	26,100	3,729
San Francisco, Cal.	1905	20	18	11	353,598	12,193
	1900	23	15	8	304,185	13,225
	1890	21	14	7	286,912	13,662
	1880	21	11	10	143,232	6,821
Cincinnati, Ohio.	1905	16	8	8	460,370	28,773
	1900	13	7	6	516,708	39,747
	1890	14	10	4	213,500	15,250
	1880	12	8	4	117,549	9,796
Pittsburg, Pa.	1905	11	6	5	453,540	41,231
	1900	11	7	4	421,741	38,340
	1890	10	7	3	232,462	23,246
	1880	9	6	3	111,001	12,333
New Orleans, La.	1905	8	5	3	120,664	15,083
	1900	9	5	4	96,360	10,707
	1890	9	4	5	73,900	8,211
	1880	10	6	4	37,565	3,757
Detroit, Mich.	1905	9	3	6	258,300	28,700
	1900	8	3	5	207,110	25,889
	1890	8	2	6	134,388	16,799
	1880	6	3	3	41,533	6,922
Milwaukee, Wis.	1905	12	3	9	210,873	17,573
	1900	11	4	7	132,805	12,073
	1890	10	5	5	63,200	6,320
	1880	7	4	3	24,300	3,471
Washington, D. C.	1905	5	2	3	113,162	22,632
	1900	8	3	5	100,848	12,606
	1890	4	2	2	62,651	15,663
	1880	5	3	2	34,500	6,900
Newark, N. J.	1905	3	1	2	70,909	23,636
	1900	3	1	2	71,832	23,944
	1890	6	3	3	50,600	8,433
	1880	6	4	2	18,300	3,050
Jersey City, N. J.	1905	2	.....	2	29,406	14,703
	1900	2	.....	2	19,580	9,790
	1890	4	1	3	28,300	7,075
	1880	2	.....	2	11,176	5,588
Louisville, Ky.	1905	8	5	3	107,625	13,453
	1900	8	5	3	136,950	17,119
	1890	5	3	2	95,100	19,020
	1880	5	4	1	22,215	4,443

TABLE 56.—*Newspapers and periodicals—number, classified as morning and evening editions, and aggregate and average circulation per issue of dailies, for twenty-six leading cities: 1880 to 1905—Con.*

CITY.	Census.	NUMBER.			Aggregate circulation per issue.	Average circulation per issue.
		Total.	Morn-ing.	Even-ing.		
Minneapolis, Minn. ¹ ..	1905	11	5	6	207,812	18,892
	1900	9	6	3	137,906	15,323
	1890	9	4	5	92,323	10,258
Providence, R. I.	1905	5	2	3	85,492	17,098
	1900	3	1	2	76,000	25,333
	1890	3	1	2	52,000	17,333
Indianapolis, Ind.	1905	5	2	3	29,900	5,980
	1905	9	4	5	228,910	25,434
	1900	9	4	5	135,698	15,078
Kansas City, Mo. ¹	1890	7	3	4	64,213	9,173
	1880	4	3	1	35,587	8,897
St. Paul, Minn.	1905	9	4	5	399,007	44,334
	1900	9	4	5	226,252	25,139
	1890	9	6	3	130,700	14,522
Rochester, N. Y. ¹	1905	7	4	3	177,839	25,406
	1900	7	2	5	114,446	16,349
	1890	7	3	4	67,850	9,693
Denver, Colo. ¹	1880	6	3	3	19,893	3,316
	1905	6	2	4	108,769	18,128
	1900	7	2	5	88,489	12,641
Omaha, Nebr. ¹	1890	7	2	5	65,276	9,325
	1905	9	3	6	138,576	15,397
	1900	7	2	5	104,485	14,926
St. Paul, Minn.	1890	5	3	2	48,000	9,600
	1905	7	4	3	104,706	14,958
	1900	8	4	4	80,740	10,093
	1890	8	2	6	60,329	7,541

¹ Not reported separately in 1880.

In number and circulation the daily newspapers of most of the smaller cities have held their own against the dailies of the larger cities. Dailies now flourish in communities which not many years since would have been regarded as incapable of supporting publications of this class. Obviously, the prosperity and increasing wealth of such communities are the causes of this change.

TABLE 57.—*Per cent which number and aggregate circulation per issue of dailies in twenty-six leading cities form of the corresponding totals for the United States: 1880 to 1905.*

CENSUS.	Number.	Per cent of total for United States.	AGGREGATE CIRCULATION PER ISSUE.	
			Amount.	Per cent of total for United States.
1905.....	360	14.7	12,701,117	60.3
1900.....	332	14.9	9,655,314	63.9
1890.....	309	19.2	6,143,819	73.3
1880.....	217	22.3	2,581,134	72.4

Fostered by favorable conditions, the daily papers published elsewhere than in the 26 leading cities have steadily increased their proportion of the total number of daily newspapers in the United States since 1890. In circulation, indeed, a contribution by the dailies published in the 26 largest cities of nearly three-fourths of the total daily circulation per issue in 1880 and 1890, has shrunk to three-fifths. The changes thus noted have been continuous and very pronounced.

This fact prompts further inquiry concerning the progress which dailies in large cities have made. Has average circulation of what may be termed for purposes of distinction "metropolitan daily newspapers" increased in proportion to population?

TABLE 58.—*Number and average circulation of daily newspapers for twenty-five leading cities: ¹ 1880 to 1905.*

	1905	1900	1890	² 1880
Number.....	331	309	288	196
Population.....	³ 13,863,197	12,523,627	9,296,676	6,093,389
Average circulation.....	37,304	30,263	20,336	12,438
Average population.....	554,528	500,945	371,867	304,669

¹ No population shown for San Francisco in 1905, hence omitted.

² Figures for only 20 of the leading cities, 5 not reported separately.

³ Population for 1905 is that estimated by this Bureau as of June 1, 1904.

By utilizing estimates of population in 1905, it appears that the average circulation per issue of the large city dailies increased at each census year much more rapidly than the average population, thus reflecting not only a generous advance in local patronage, but the extension already noted, of extra-urban circulation.

Furthermore, the aggregate circulation of daily papers in the group here considered increased with noteworthy rapidity, having grown about fivefold from 1880 to 1905. In the former year the daily papers sufficed for but one in three persons, while in 1905 the total circulation per issue of dailies was almost sufficient to supply one copy to each inhabitant.

Returning, therefore, to the fact, shown in Table 57, of the shrinking proportion of product contributed by the obviously prosperous daily publications of the 26 leading cities, it is clear that the increase in number and circulation of daily papers in small cities and large towns must have been in progress to a noteworthy degree in order to contribute a greater increase than that contributed by the metropolitan group.

This result has been made possible by the advance in mechanical appliances to which attention has already been called, and especially by public opinion in smaller urban communities, which shows an increasing tendency to regard the daily newspaper as a local necessity and the standard and evidence of progress.

In such instances and in many others also the publisher of the daily newspaper reaps somewhat uncertain profits. In this industry to a noteworthy degree the saving secured by utilizing new inventions is devoted to increased size and improved appearance of the publication itself, so that in the end the public rather than the publisher is the beneficiary.

THE WEEKLY.

In character of product the weekly class occupies a position midway between the daily and the monthly, while the daily must be regarded as distinctively a news medium, and the monthly as distinctively a literary medium; but at the present time both show a tendency to extend their arbitrary boundaries, and the

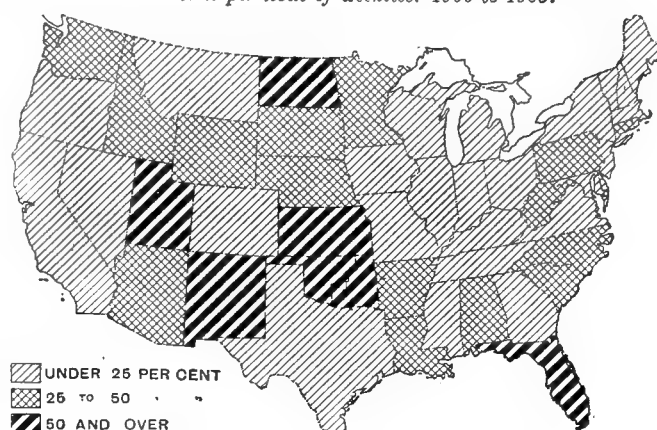
weekly in some respects is suffering from these inroads. Although the aggregate weekly circulation is not growing as fast as that of either the daily or the monthly, it has shown a steady increase at each census from 1850 to 1905. From 1850 to 1860, for example, the aggregate circulation per issue of weekly publications more than doubled, but at no time since that decade has so great a proportion of increase occurred. It is likely that the period of greatest increase in weekly circulation has passed.

In 1850 the North Atlantic states produced practically two-thirds of the aggregate weekly circulation per issue, New England alone contributing one-fifth; but in 1905 the entire North Atlantic group reported little more than one-third of the total weekly circulation.

Weekly publications may be divided into three general classes. Naturally the most important of these is the country weekly, the second is the city weekly (devoted to special topics, whether literary, pictorial, or comic), and the third is the trade publication. It is probably a fact that but a small proportion of the residents of rural communities—the agricultural element in particular, dwelling upon the 6,000,000 farms of the United States—are readers of dailies or monthlies, although the number of such readers is doubtless steadily increasing with the extension of the rural free delivery. They are, however, almost without exception, attentive readers of the local weekly, from which they secure both their news and their politics. On

the other hand, the dwellers in large towns and cities patronize the dailies and monthlies and purchase few or no weekly publications.

MAP 25.—States showing specified per cent of increase in aggregate circulation per issue of weeklies: 1900 to 1905.



Analysis of the circulation of the weekly by the separation of the states into two general classes—urban and rural—shows that there has been a more marked increase in weekly circulation in urban states. This seems to be due to certain exceptional publications, having a literary or pictorial character, with very large general circulation, for the rural states report a far larger number of weekly publications than the urban states, and this number is increasing very rapidly.

TABLE 59.—NEWSPAPERS AND PERIODICALS—AGGREGATE CIRCULATION PER ISSUE OF WEEKLIES, WITH PER CENT OF INCREASE, AND PER CENT WHICH CIRCULATION IN EACH DIVISION FORMS OF TOTAL WEEKLY CIRCULATION, BY GEOGRAPHIC DIVISIONS: 1880 TO 1905.

DIVISION.	AGGREGATE CIRCULATION PER ISSUE.				PER CENT OF INCREASE.			PER CENT OF TOTAL.			
	1905	1900	1890	1880	1900 to 1905	1890 to 1900	1880 to 1890	1905	1900	1890	1880
Continental United States.....	36,732,037	34,242,052	28,954,515	16,266,830	7.3	18.3	78.0	100.0	100.0	100.0	100.0
North Atlantic.....	13,441,299	13,802,877	12,339,204	8,048,784	12.6	11.9	53.3	36.6	40.3	42.6	49.5
South Atlantic.....	1,937,147	1,831,958	1,570,909	890,337	5.7	16.6	76.4	5.3	5.4	5.4	5.5
North Central.....	16,391,262	14,098,698	11,510,530	5,825,490	16.3	22.5	97.6	44.6	41.2	39.8	35.8
South Central.....	3,207,176	3,063,191	2,375,794	959,341	4.7	28.9	147.6	8.7	8.9	8.2	5.9
Western.....	1,755,153	1,445,328	1,158,078	542,878	21.4	24.8	113.3	4.8	4.2	4.0	3.3

¹ Decrease.

Contrary to the usual custom, the largest weekly circulation per issue in 1905 was not reported by the North Atlantic division. In that year, as well as in 1900, the North Central division contributed the largest proportion, having taken the lead from the North Atlantic in the decade from 1890 to 1900. Moreover, the North Atlantic division for the first time

showed signs of decrease, reporting an aggregate weekly circulation slightly less in 1905 than at the previous census. The large group of populous states in the North Central division contributed the most liberal patronage to the weekly, and the proportion is steadily increasing at the expense of the North Atlantic group.

TABLE 60.—NEWSPAPERS AND PERIODICALS—AGGREGATE CIRCULATION PER ISSUE OF WEEKLIES IN THE TEN LEADING STATES, WITH PER CENT OF THE TOTAL WEEKLY CIRCULATION FOR THE UNITED STATES: 1880 TO 1905.

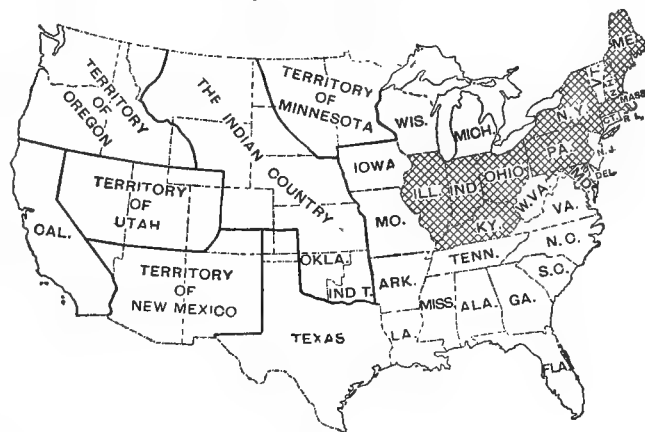
STATE.	AGGREGATE CIRCULATION PER ISSUE.				PER CENT OF TOTAL FOR THE UNITED STATES.			
	1905	1900	1890	1880	1905	1900	1890	1880
Total for 10 states.....	25,765,777	24,335,658	20,633,422	12,005,761	70.1	71.1	71.3	73.8
New York.....	5,475,689	6,997,099	6,347,827	4,253,908	14.9	20.4	21.9	26.1
Pennsylvania.....	5,325,741	3,691,954	3,135,664	1,998,340	14.5	10.8	10.8	12.3
Illinois.....	4,671,043	3,866,983	3,437,663	1,527,042	12.7	11.3	11.9	9.4
Ohio.....	2,766,811	2,411,172	1,996,400	1,328,133	7.5	7.0	6.9	8.2
Missouri.....	1,814,457	1,862,856	1,346,714	645,747	4.9	5.5	4.7	4.0
Massachusetts.....	1,475,984	2,066,369	1,802,125	1,089,515	4.0	6.0	6.2	6.7
Iowa.....	1,167,294	1,105,666	795,077	449,550	3.2	3.2	2.7	2.8
Minnesota.....	1,151,145	908,478	518,563	167,206	3.1	2.7	1.8	1.0
Kansas.....	1,015,146	653,507	596,089	230,141	2.8	1.9	2.1	1.4
Wisconsin.....	902,467	771,574	657,300	316,179	2.5	2.3	2.3	1.9

Since the weekly secures its great aggregate circulation by the contribution of many thousand publications scattered all over the United States, it is less subject to concentration in certain states than are publications of any other class. Not only will a list of the 10 states which contributed the largest circulation of weekly publications in 1905 be found to differ somewhat from the lists of states contributing the largest aggregate circulation and the largest daily circulation, but it will appear, also, that the contribution of these states to the total weekly circulation is considerably less than their contribution to the total of the other classes. Moreover, the proportion of total circulation of the weekly contributed by these states is decreasing, and it is difficult to escape the conclusion, already suggested, that the weekly is primarily a representative of the rural sections, and that it will never be supplanted in that capacity. Indeed, there may be even less concentration in the future than existed in 1905.

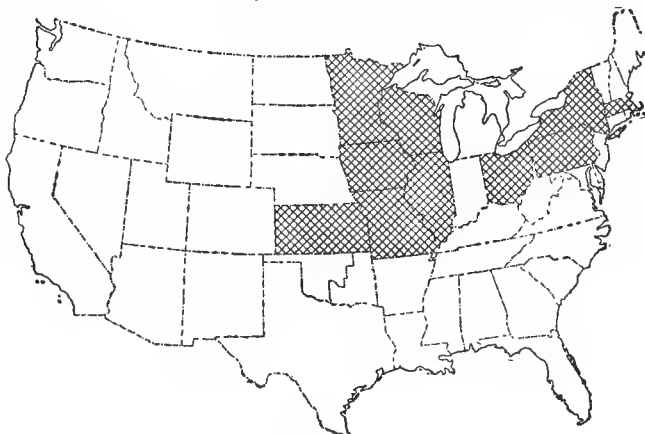
If this subject of the 10 leaders at each census be considered, it appears that 5 states—New York, Pennsylvania, Illinois, Ohio, and Massachusetts—are included at each period, while the remaining 5 have been drawn from 15 states. The changes therefore have been very limited. Missouri, for example, has been one of the 10 leaders at six of the seven census dates considered, or from 1860 to 1905; Indiana has been one of the leaders at six also, but from 1850 to 1900, being displaced in 1905 by Wisconsin. The proportions of the total weekly circulation contributed by the 10 largest producers at each census were as follows:

	Per cent.
1905.....	70.1
1900.....	72.7
1890.....	73.1
1880.....	77.7
1870.....	81.7
1860.....	79.6
1850.....	77.7

MAP 26.—Ten states having greatest aggregate circulation per issue of weeklies: 1850.



MAP 27.—Ten states having greatest aggregate circulation per issue of weeklies: 1905.



While no marked difference is here shown for the proportionate contribution of the 10 leaders, there have evidently been two general movements since 1850—a slow advance to 1870, and an equally slow and steady decline ever since. These movements are in harmony with mechanical changes which have occurred in the industry.

Such is the progress of our time that although the weekly in general has felt the advance in mechanical appliances less than either the daily or the monthly, a great advance has occurred even in the humblest weekly establishments. The crude mechanical processes by which the country editor in past years produced a publication, scarcely more than a proof, after much personal labor in setting type, has given place to a publication oftentimes set upon a type machine and generally printed upon a modern press.

The weekly paper has performed an unquestionable service. Wherever pioneers pushed into the wilderness, or newly developed mines or manufacturing enterprises attracted inhabitants to new communities, the newspaper which followed in the wake of population was inevitably the weekly. The weekly, indeed, may be termed the characteristic American newspaper. It has told the story of young communities from the time of the settlement of the United States, picturing the trials and triumphs of the founders, and has voiced the hope, conscience activity, and manliness of the average American town and village.

THE MONTHLY.

Of the three classes to which detailed consideration is given—the daily, weekly, and monthly—the monthly in many respects shows the most decided and significant changes. This class of publication has been the time-honored medium for presenting literature as distinguished from news. Of the latter it contained none, but consisted of essays, fiction, science, philosophy, poetry, and travel, and in consequence was until recently regarded as quite apart from what was generally termed journalism. The great opportunity of the monthly arose in the decade from 1890 to 1900. During that period the half-tone illustration came into general use, and the perfecting press was adapted to exacting requirements. By the former publications could be illustrated cheaply and attractively, and by the latter these illustrations, and also improved typographical effects, could be produced at much less expenditure than previously. In consequence, the selling price of monthlies fell, editions increased, and new publications, both inexpensive and attractive, came into existence. To the monthly field were attracted progressive editors and publishers who in previous decades would have regarded this medium as slow and hopeless. They perceived the possibilities and their effort has been rewarded by noteworthy results.

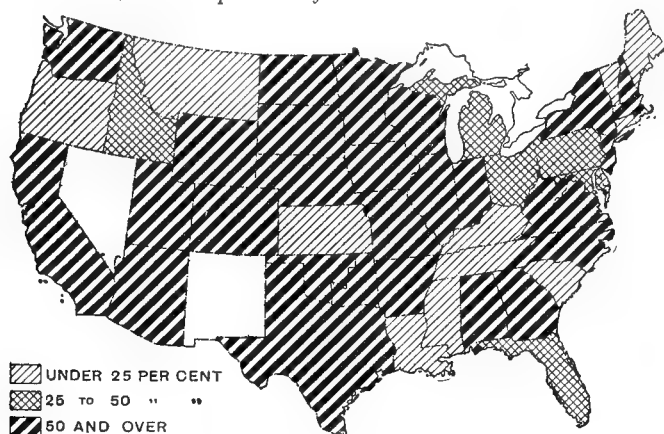
It should be remembered that the operations of the daily newspaper, with few metropolitan exceptions, are limited to the area which can be reached in six or eight hours of fast-mail service. Most weeklies

also are hampered, though in a lesser degree, by the limitations of local patronage. The publishers of the monthly, however, were quick to perceive that the patronage for this class of publications knew no local bounds, but that its constituency could be made the entire nation and beyond. With talent applied to organization, the advantage of low cost, beautiful product, and the elimination of the problem of locality, the monthly was obviously destined to a new career.

During the period from 1900 to 1905 the editorial policy in connection with many of the larger monthly publications was directed to secure still greater popularity. News features appeared of higher literary merit, of more permanent value, and better illustrated than were possible in daily and weekly papers, and a number of publications of this class adopted the policy of dealing with current subjects and those in which entire communities were likely to take a lively personal interest. These topics, often local, were so discussed as to be typical and to appeal to continental patronage. New publications were established and old ones prospered amazingly. The result is strikingly illustrated by the statistics of circulation. For the period from 1900 to 1905, monthly publications reported an aggregate circulation per issue (upon a decade basis) five times as great as the increase shown for the decade from 1880 to 1890, and more than four times as great as the increase shown by the daily class from 1900 to 1905, and over ten times as great as that of the weekly. Thus, in 1905 the aggregate circulation of the monthly outstripped that of every other class and amounted to almost half the total circulation per issue of all classes of publications in the United States.

The increase in the circulation of monthlies is of so much significance that it will be of interest to make further comparisons. From 1880 to 1905 daily publications increased their aggregate circulation per issue 491 per cent, the weekly class increased 125.8 per cent, but the monthly class showed the remarkable advance of 690 per cent. Considering the absolute figures in 1880, the aggregate circulation per issue of the monthly class was half that of the weekly and more than double that of the daily. In 1905 its own figures had increased almost eightfold; it was one and three-fourths times as great as the circulation of the weekly, and three times as great as that of the daily. In 1880 the average circulation per issue of the monthly was approximately four times that of the weekly and twice that of the daily. In 1905 it was ten times as great as that of the weekly and nearly three times as great as that of the daily. It is obvious that the opportunity for continental rather than local patronage has not been neglected.

MAP 28.—States showing specified per cent of increase in aggregate circulation per issue of monthlies: 1900 to 1905.



The tendency shown in this class of publications to concentrate production in certain communities, while increasing the area of patronage, would lend especial

value to an analysis of monthly circulation by the amount of local consumption as compared with that in other communities. Unfortunately no such segregation is possible. It is of much interest, however, to note those groups of states which make a specialty of supplying the demand of other communities for this class of publication.

The proportionate contribution of the North Atlantic division to the total circulation of monthly publications in the United States in 1905 is somewhat less than it was in 1900. The loss which this group of states sustained was made up by the North Central division, for which the percentage of increase, upon a decade basis, is nearly double that shown for the previous decade. But as the North Atlantic division overshadows all others in total product, these facts possess less significance than at first appears; they point to the concentration to which reference has already been made.

TABLE 61.—NEWSPAPERS AND PERIODICALS—AGGREGATE CIRCULATION PER ISSUE OF MONTHLIES, WITH PER CENT OF INCREASE AND PER CENT WHICH CIRCULATION IN EACH DIVISION FORMS OF TOTAL, BY GEOGRAPHIC DIVISIONS: 1880 TO 1905.

DIVISION.	AGGREGATE CIRCULATION PER ISSUE.				PER CENT OF INCREASE.			PER CENT OF TOTAL.			
	1905	1900	1890	1880	1900 to 1905	1890 to 1900	1880 to 1890	1905	1900	1890	1880
Continental United States.....	64,806,155	37,869,897	18,632,723	8,139,881	69.8	103.3	128.9	100.0	100.0	100.0	100.0
North Atlantic.....	44,083,679	27,019,523	13,413,879	6,261,478	63.2	101.4	114.2	68.5	71.4	72.0	76.9
South Atlantic.....	903,818	656,315	293,742	208,889	37.7	123.4	40.6	1.4	1.7	1.6	2.6
North Central.....	17,477,790	9,133,753	4,474,645	1,423,924	91.4	104.1	214.2	27.2	24.1	24.0	17.5
South Central.....	712,510	646,110	247,982	117,245	10.3	160.5	111.5	1.1	1.7	1.3	1.4
Western.....	1,128,358	414,196	202,475	128,345	172.4	104.6	57.8	1.8	1.1	1.0	1.6

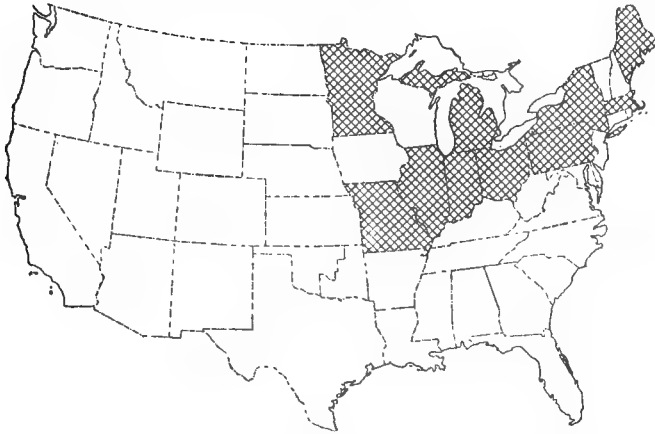
TABLE 62.—NEWSPAPERS AND PERIODICALS—AGGREGATE CIRCULATION PER ISSUE OF MONTHLIES IN THE TEN LEADING STATES, WITH PER CENT OF THE TOTAL MONTHLY CIRCULATION FOR THE UNITED STATES: 1880 TO 1905.

STATE.	AGGREGATE CIRCULATION PER ISSUE.				PER CENT OF TOTAL FOR THE UNITED STATES.			
	1905	1900	1890	1880	1905	1900	1890	1880
Total for 10 states.....	58,933,951	34,925,138	17,153,712	7,417,008	91.6	92.2	92.1	91.1
New York.....	28,217,126	15,277,062	6,990,400	2,903,527	43.9	40.3	37.5	35.7
Maine.....	6,622,541	6,120,490	1,964,659	1,036,200	10.3	16.2	10.6	12.7
Illinois.....	6,344,791	3,072,932	1,627,250	401,646	9.9	8.1	8.7	4.9
Pennsylvania.....	4,385,686	3,246,779	2,763,798	1,606,073	6.8	8.6	14.9	19.7
Massachusetts.....	4,374,209	2,257,142	1,327,740	574,538	6.8	6.0	7.1	7.1
Missouri.....	3,365,168	1,378,586	624,767	153,800	5.2	3.6	3.4	1.9
Ohio.....	2,006,287	1,420,501	956,522	622,531	3.1	3.7	5.1	7.7
Michigan.....	1,372,519	984,025	377,734	33,293	2.1	2.6	2.0	0.4
Indiana.....	1,288,928	715,292	371,909	60,250	2.0	1.9	2.0	0.7
Minnesota.....	956,696	452,329	148,933	25,150	1.5	1.2	0.8	0.3

If the 10 states having the largest monthly product be selected, the concentration of circulation of monthlies is shown to be much greater than that of the daily or weekly class. Moreover, this concentration

has been maintained with little or no variation since 1880—that is, throughout the period during which the most marked changes have occurred in this industry.

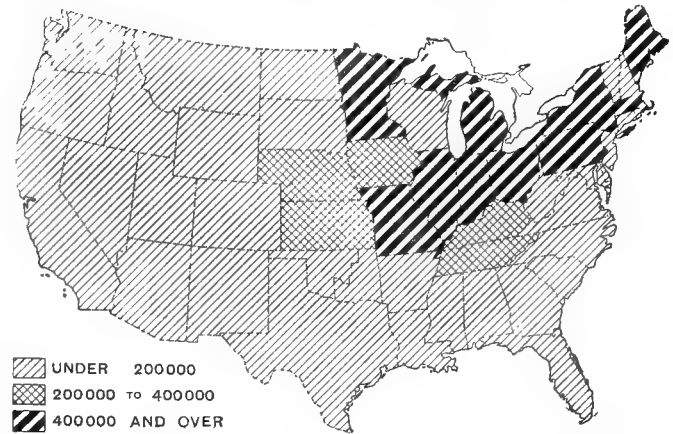
MAP 29.—Ten states having greatest aggregate circulation per issue of monthlies: 1905.



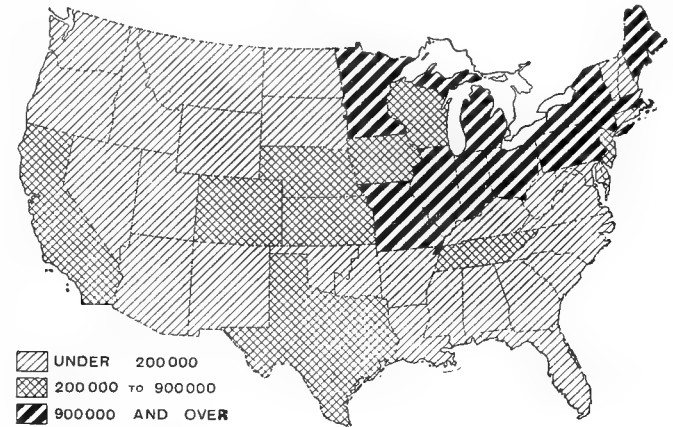
In 1905, 10 states contributed 91.6 per cent of the total monthly circulation. Obviously all the remaining states contributed but 8.4 per cent of the entire circulation per issue of monthly publications. These states and territories may be separated into two classes—those which report a comparatively insignificant and practically negligible circulation and those whose contribution to this class of publications is of some consequence in amount. If the former division includes all those states and territories having an aggregate circulation per issue under 200,000, the number in 1905 proves to be 30, leaving a small group of 10 states showing an intermediate circulation product between the 200,000 limit shown by the 30 states and the circulation reported by the lowest of the 10 states which are the largest producers, as compared with 34 and 6, respectively, in 1900.

The geographic relations of the states having a minimum product possess considerable interest, since these states, which in 1900 formed a pathway practically without break around the eastern and southern coast, and included most of the western half of the continent from the Gulf to the state of Washington, in 1905 showed a somewhat interrupted area. Although this group of states is vast territorially, the insignificance of the monthly circulation contributed is emphasized by the fact that the proportion of aggregate monthly circulation per issue for the entire group amounted to but 1.9 per cent in 1905. Furthermore, this proportion, small as it is, seems to be declining, since the contribution in 1900 was 3.1 per cent of the total. With two exceptions, the states having an intermediate circulation between the minimum group and the 10 states having the largest product adjoin or lie near the principal producers, and all are populous and wealthy. In 1900 the proportion shown by this group of states was 4.7; in 1905 it was 6.5.

MAP 30.—States having specified circulation per issue of the monthly: 1900.



MAP 31.—States having specified circulation per issue of the monthly: 1905.



The conclusion, therefore, seems justified that the contribution of the states which reported a monthly circulation per issue of 200,000 or less, 30 in number in 1905, is decreasing, while that of the 10 largest producers is practically stationary, and that the only proportionate increase shown is that of the 10 important and populous states which report an intermediate product of monthly circulation.

The contribution of the 3 principal producers of monthly circulation—in 1905 New York, Maine, and Illinois—has remained at approximately three-fifths of the total since 1880, although the contributors and the proportion also of their contribution have varied.

The prominence of the state of Maine in monthly circulation has long been an interesting development in the production of this class of periodicals. The especial importance of Maine in this connection dates from the latter part of the decade 1880 to 1890, at which time the industry began to be developed in Augusta and other cities. Magazines were published in

very large editions and at such low subscription rates that they commended themselves to people of the most moderate resources, especially in remote rural districts. By using the cheapest grades of paper and making small expenditure for literary matter, the cost of production was reduced so low that a profit was secured even upon a subscription price varying from 10 to 25 cents per annum. With an advertising patronage which steadily increased because of the immense circulation secured, the original publications became very prosperous and led to the establishment of similar publications not only in the state of Maine, but also in St. Louis, Chicago, and other cities.

The magnitude of the operations required for the successful maintenance of such publications is so great that the field is not large enough for extensive competition. Many such publications have ceased to exist, but the original establishments in Maine have succeeded in maintaining prosperity, and now occupy the field to the practical exclusion of all others. There still are 4 establishments in Maine which are accomplishing noteworthy results in this connection. Two of these are located in Augusta, and the volume of their circulation is so great that although the city is small in population it ranks among the first 10 communities in the United States in the amount of second-class mail matter handled. Sixteen publications are issued by the 4 leading establishments in Maine, and several of these publications have a circulation exceeding 1,000,000 copies. Three of the 4 establishments, however, publish approximately 2,000,000 copies per issue, and in each case more than two-thirds of the copies sent out are dispatched to actual subscribers located in the various states and territories of the Union and in Canada. In order to handle the vast number of individual pieces mailed in the post offices of Augusta, Portland, and Waterville, a special arrangement was made by the Post Office Department with the publishers to route the stencils from which addresses are automatically taken, so that a large part of the copies of each issue are sacked for postal routes by the publishers themselves, and the amount of labor in handling is thus reduced to a minimum. There always remains, however, a large number of pieces which can not be routed and must therefore be separately worked by the railway mail service.

The amount of labor entailed upon the Post Office Department by the immense circulation of the monthly publications in the state of Maine, even with the advantage of cooperation, may be judged from the fact that the number of sacks of mail made up and handled monthly in the census year averaged more than 56,000, weighing approximately 1,000,000 pounds. The aggregate expenditure for labor in the principal Maine establishments approximates \$250,000, and a similar sum is expended for white paper, representing about 12,000,000 pounds of news stock used in connection with the 16 publications mentioned.

By tracing the circulation of monthly publications in 1850, conditions develop that are even more interesting than those noted in connection with similar analysis for the daily and the weekly. Only 3 states—New York, Massachusetts, and Illinois—have proved leading contributors at each census from 1850 to 1905, this number being less than the number shown for the general industry or the daily or the weekly. Pennsylvania and Ohio, however, were numbered among the leading producers at every census except that of 1850. The total number of states from which the 10 leaders were drawn during the entire period of fifty-five years was 20, and somewhat more variation has existed from decade to decade in the case of the monthly than in the case of other classes of publications.

The concentration in 1850 of the circulation of monthlies in 10 states was greater than that shown for any other class of publications, and embraced practically all but a fraction of 1 per cent of the entire monthly circulation. Although this proportion has slowly decreased, the concentration for this class of publications in 1905 still remained much more marked than for any other.

	Per cent.
1905.....	91.6
1900.....	92.2
1890.....	92.3
1880.....	92.6
1870.....	93.3
1860.....	96.6
1850.....	99.2

The evidence of concentration of monthly circulation revealed in this analysis prompts further inquiry concerning the proportion contributed by larger cities.

Circulation contributed by large cities.—Within the 10 states that contributed 91.6 per cent of the aggregate monthly circulation per issue are located all the cities in the United States having more than 500,000 inhabitants, with the exception of Baltimore. The last-named city has a monthly circulation so small that it is negligible, but it is included in the following table in order that the class may be complete.

TABLE 63.—*Newspapers and periodicals—aggregate circulation per issue of monthlies in cities having at least 500,000 inhabitants, with per cent of the total monthly circulation in states in which located: 1905.*

CITY.	Aggregate monthly circulation.	Monthly circulation in state in which city is located.	PER CENT OF TOTAL MONTHLY CIRCULATION.	
			City.	State exclusive of city.
Continental United States.....	64,306,155	.....	65.0	7.8
Total for 6 cities.....	41,795,519	46,810,130	89.3	10.7
New York, N. Y.....	26,076,553	28,217,126	92.4	7.6
Chicago, Ill.....	4,949,524	6,344,791	78.0	22.0
Boston, Mass.....	4,007,434	4,374,209	91.6	8.4
Philadelphia, Pa.....	3,506,052	4,385,686	79.9	20.1
St. Louis, Mo.....	3,137,356	3,365,168	93.2	6.8
Baltimore, Md.....	118,600	123,150	96.3	3.7

Of the total monthly circulation per issue of approximately 59,000,000 in the 10 states specified as largest producers, about 42,000,000 were contributed by the small group of large cities shown in Table 63. Six large cities furnished two-thirds of the entire monthly circulation of the United States in 1905. In this group New York is far in the lead, contributing more than five times the monthly circulation furnished by Chicago, the city making the next largest contribution.

Although not indicated in the table, it is an interesting fact that the cities here specified contribute one-third of the total weekly circulation in the United States, and an aggregate midway between one-third and one-half of the total daily circulation. The concentration of production in the cities specified is therefore much greater in the monthly class than in either of the two other principal classes.

If the contribution of the 10 states to the total monthly circulation be reduced by the amount reported by the 6 large cities, only 17,138,432, or 29.2 per cent, is left as the amount returned by the remaining parts of these states. This rather remarkable showing makes plain the comparative unimportance of each of these states as producers of monthly publications, outside of the great city located within its borders. Were it possible to pursue the analysis of monthly circulation into the group of cities next in size in the states specified, it would probably appear that they contributed in turn most of the remaining monthly circulation, so that the conclusion seems justified that the monthly, far more than either the daily or the weekly, is a distinctly urban publication.

From statistics of monthly circulation thus far presented it is clear that publications of this class devoted to general literature have steadily extended the area in which they secure circulation, and at the same time there is a tendency for them to concentrate production

in two or three large urban centers. The publishers on the one hand conclude that their interests in connection with literary material, advertising, and sales will be best served by locating in these centers, and the public, on the other hand, wherever located, have come to a vague belief that the publications emanating from certain cities possess advantages that are not possessed by those published elsewhere. In consequence, many of the principal monthly magazines which were not originally established in New York city have removed to that city. Thus there has been in progress what may be termed an educational process in connection with the distribution of monthly magazines, resulting in the rather exceptional condition noted. Were a New York daily newspaper offered for sale in New Orleans or San Francisco, it would probably find no purchasers except among tourists from New York. The sale of a monthly publication, on the other hand, would be assisted by a New York imprint. It is stated by magazine publishers, whose experience and position lend weight to their opinion, that patrons of monthly magazines are generally persons of resources and education, and that patronage increases in proportion to the progressiveness, cultivation, and wealth of a community. They confirm the evidence of statistics of circulation, that production in the United States of monthly magazines devoted to general literature for the most part is confined to a few large cities, and among these practically concentrated in New York city. This is becoming so well recognized that an attempt to establish a large and important periodical from a publishing center other than New York is attended by many difficulties. Thus far there is no evidence that the tendency here noted is decreasing; on the contrary, the returns of the census of 1905 indicate continued concentration of product, with an enormous increase in aggregate circulation.

PRINTING AND PUBLISHING IN ALASKA.

Statistics for printing and publishing in Alaska were secured for the first time at the census of 1905. As the schedules were obtained by correspondence, the results are necessarily defective. In view of the fact that, out of 12 establishments listed in 1905 by newspaper directories, returns were secured for but 5, the tabulations which follow must be regarded merely as a beginning. They furnish impressive evidence of the steady advance in population and substantial commercial enterprises of communities, one of which at least is situated above the Arctic Circle. Since the statistics for Alaska are for the census of 1905 only, they have not been included in any of the tables of this bulletin.

TABLE 64.—*Printing and publishing—summary: 1905.*

Number of establishments.....	5
Capital.....	\$12,575
Salaried officials, clerks, etc., number.....	1
Salaries.....	\$1,000
Wage-earners, average number.....	11
Total wages.....	\$9,280
Men 16 years and over.....	10
Wages.....	\$9,150
Children under 16 years.....	1
Wages.....	\$130
Miscellaneous expenses.....	\$2,861
Cost of materials used.....	\$3,526
Value of products.....	\$25,752
Number of hand compositors.....	7

TABLE 65.—*Printing and publishing—cost of materials and value of products: 1905.*

Cost of materials, aggregate.....	\$3,526
Paper for newspapers and periodicals:	
Pounds.....	27,256
Cost.....	\$989
Paper for book and job printing.....	\$1,028
All other materials.....	\$1,509
Value of products, aggregate value.....	\$25,752
Newspaper and periodical products, total cost.....	\$21,020
Advertising.....	\$14,220
Subscriptions and sales.....	\$6,800
Book and job printing.....	\$4,732

Naturally the principal item is the newspaper product. Here the value of advertising is more than twice as great as that of subscription and sales. Book and job printing is as yet an insignificant product.

TABLE 66.—*Newspapers and periodicals—number and circulation: 1905.*

Total number.....	6
Period of issue:	
Daily.....	3
Morning.....	2
Evening.....	1
Weekly.....	3
Character:	
News, politics, and family reading.....	6
Language:	
English.....	6
Circulation, aggregate per issue:	
Daily.....	1,070
Weekly.....	1,560
Total foreign.....	40
Canada.....	30

TABLE 67.—PRINTING AND PUBLISHING—COMPARATIVE SUMMARY, BY STATES, TERRITORIES, AND GEOGRAPHIC DIVISIONS: 1880 TO 1905.

STATE OR TERRITORY.	Census.	Num- ber of estab- lish- ments.	Capital.	SALARIED OFFICIALS, CLERKS, ETC.		WAGE-EARNERS AND WAGES.		Miscella- neous expenses.	Cost of materials used.	Value of products.
				Number.	Salaries.	Average number.	Wages.			
Continental United States.....	1905	26,422	\$385,008,604	64,969	\$63,036,582	185,180	\$108,882,518	\$102,466,410	\$123,470,804	\$496,061,357
	1900	22,311	292,516,642	37,799	36,090,719	162,992	84,249,954	55,897,871	86,856,160	347,054,430
	1890	16,566	195,387,445	28,391	26,272,756	136,836	78,810,319	46,971,768	68,858,915	275,452,515
	1880			(1)	(1)	130,121	59,100,993	(2)		179,988,415
North Atlantic division.....	1905	7,687	193,788,008	32,002	32,641,685	78,659	48,697,830	57,855,508	59,236,238	242,625,110
	1900	6,670	154,786,226	18,078	19,081,067	70,549	40,336,950	33,325,614	44,387,018	177,013,357
	1890	5,494	99,821,095	12,451	12,228,094	58,764	36,047,898	26,863,688	32,847,397	135,036,691
	1880					58,060	28,771,828			95,458,338
New England.....	1905	1,887	35,223,986	5,938	6,012,653	18,192	10,800,121	9,692,036	12,178,592	46,764,193
	1900	1,791	29,389,898	4,080	3,705,058	17,086	9,694,330	7,070,194	9,482,559	39,555,643
	1890	1,461	19,239,842	2,907	2,505,961	13,505	7,590,264	5,271,119	6,993,671	27,398,391
	1880					13,876	7,132,382			21,357,127
Maine.....	1905	206	2,107,149	299	252,973	1,703	717,352	973,480	887,447	3,272,331
	1900	199	2,032,254	240	197,347	1,585	595,273	510,948	647,869	2,605,387
	1890	141	1,317,838	431	225,911	1,085	487,156	263,062	417,508	1,894,788
	1880					1,676	614,011			2,842,559
New Hampshire.....	1905	123	1,068,140	86	85,580	636	328,592	140,194	214,593	957,424
	1900	127	1,151,026	67	64,834	661	298,455	72,191	205,160	885,676
	1890	118	877,575	108	73,796	640	289,282	121,494	229,605	919,528
	1880					610	207,291			624,609
Vermont.....	1905	104	775,892	114	99,730	604	271,489	102,904	235,847	931,518
	1900	102	677,145	93	64,845	581	234,999	69,809	188,252	777,111
	1890	78	561,268	87	66,090	433	201,584	68,821	175,064	627,568
	1880					501	135,686			394,518
Massachusetts.....	1905	1,021	24,310,086	4,437	4,630,226	11,548	7,347,903	7,613,339	8,863,450	33,900,748
	1900	990	19,620,791	3,195	2,907,390	11,019	6,761,974	5,618,379	6,914,994	29,372,314
	1890	832	12,743,010	1,803	1,667,072	8,583	5,053,814	4,188,248	4,980,352	19,413,039
	1880					8,438	4,859,567			14,315,020
Rhode Island.....	1905	127	2,288,695	401	325,582	1,252	669,127	271,077	731,182	2,759,983
	1900	104	1,630,270	115	122,628	1,109	598,637	187,737	528,130	1,908,323
	1890	80	1,083,707	152	140,392	837	469,780	245,025	363,357	1,428,507
	1880					927	487,426			1,129,751
Connecticut.....	1905	306	4,674,024	601	618,562	2,449	1,465,658	591,042	1,246,073	4,942,189
	1900	269	4,278,412	370	348,014	2,131	1,204,992	611,130	998,154	4,006,832
	1890	212	2,656,444	326	332,700	1,927	1,088,648	384,469	827,785	3,114,961
	1880					1,724	828,401			2,050,670
Southern North Atlantic.....	1905	5,800	158,564,022	26,064	26,629,032	60,467	37,897,709	48,163,472	47,057,646	195,860,917
	1900	4,879	125,396,328	13,998	15,376,009	53,463	30,642,620	26,255,420	34,904,459	137,457,714
	1890	4,033	80,581,253	9,544	9,722,133	45,259	28,457,634	21,592,569	25,853,726	107,638,300
	1880					44,184	21,639,446			74,101,211
New York.....	1905	3,235	103,949,562	19,063	19,946,751	37,494	25,184,855	38,252,955	30,721,227	137,985,751
	1900	2,640	80,588,361	9,423	11,131,634	32,948	20,309,991	20,345,531	23,364,449	95,232,051
	1890	2,246	47,678,724	6,088	6,551,362	27,786	19,101,233	13,763,069	16,443,869	69,156,101
	1880					26,819	14,519,558			52,152,287
New Jersey.....	1905	557	8,297,237	1,004	946,042	3,972	2,301,079	872,922	2,155,591	8,106,626
	1900	444	6,140,192	519	496,691	3,524	1,786,112	399,711	1,587,812	5,770,034
	1890	300	3,152,834	526	461,079	2,464	1,342,956	535,783	993,946	4,073,706
	1880					2,425	931,757			2,399,534
Pennsylvania.....	1905	2,008	46,317,223	5,997	5,736,239	19,001	10,411,775	9,037,595	14,180,828	49,768,540
	1900	1,795	38,667,775	4,056	3,747,684	16,991	8,546,517	5,510,178	9,952,198	36,455,629
	1890	1,487	29,749,695	2,930	2,709,692	15,009	8,013,445	7,293,717	8,415,911	34,408,493
	1880					14,940	6,188,131			19,549,390
South Atlantic division.....	1905	1,916	20,300,222	3,196	2,826,797	10,646	5,188,634	3,768,909	5,204,693	22,169,270
	1900	1,604	15,542,877	1,875	1,596,749	10,399	4,504,646	1,911,800	3,953,477	15,939,852
	1890	1,183	9,557,489	1,571	1,239,665	10,274	5,907,266	1,526,114	4,158,551	15,547,907
	1880					9,695	4,352,582			11,284,987
Delaware.....	1905	46	512,594	62	46,608	267	124,860	47,419	103,405	398,005
	1900	39	420,747	57	38,300	308	126,814	25,192	85,428	329,799
	1890	37	395,029	57	42,871	278	121,146	28,742	56,940	307,096
	1880					203	60,859			170,588
Maryland.....	1905	302	4,281,601	880	802,185	2,460	1,237,479	913,553	1,463,825	5,493,112
	1900	297	3,837,988	640	519,817	2,833	1,294,242	551,269	1,413,130	4,871,289
	1890	215	2,123,944	359	313,101	1,827	955,944	368,368	805,574	3,172,358
	1880					2,096	930,947			3,045,057
District of Columbia.....	1905	131	3,034,642	505	570,896	1,041	677,680	1,137,785	576,169	3,831,535
	1900	132	3,028,287	337	320,186	1,284	733,715	481,463	483,960	2,661,639
	1890	64	1,738,081	145	140,312	3,451	2,743,825	192,141	1,557,728	5,088,114
	1880					2,085	1,684,804			3,465,969
Virginia.....	1905	209	3,386,276	485	363,315	1,819	806,413	501,051	860,417	3,224,401
	1900	248	2,607,995	285	201,402	1,453	621,600	303,459	545,042	2,229,604
	1890	205	1,341,535	257	186,778	1,116	487,775	236,973	397,307	1,626,938
	1880					1,495	499,280			1,323,801

¹Not reported separately.²Not reported.³Does not include 2 establishments for tip printing, which, to avoid disclosing operations of individual establishments, were tabulated under "not distributed by states."⁴Does not include 1 establishment for music publishing, which, to avoid disclosing operations of individual establishments, was tabulated under "not distributed by states."⁵Does not include 1 establishment for tip printing, which, to avoid disclosing operations of individual establishments, was tabulated under "not distributed by states."⁶Includes Governmental establishments.⁷Does not include 2 establishments for music publishing, which, to avoid disclosing operations of individual establishments, were tabulated under "not distributed by states."

TABLE 67.—PRINTING AND PUBLISHING—COMPARATIVE SUMMARY, BY STATES, TERRITORIES, AND GEOGRAPHIC DIVISIONS: 1880 TO 1905—Continued.

STATE OR TERRITORY.	Census.	Number of establishments.	Capital.	SALARIED OFFICIALS, CLERKS, ETC.		WAGE-EARNERS AND WAGES.		Miscellaneous expenses.	Cost of materials used.	Value of products.
				Number.	Salaries.	Average number.	Wages.			
South Atlantic division—Continued.										
West Virginia.....	1905	222	\$1,754,438	158	\$124,552	944	\$480,144	\$163,710	\$350,919	\$1,554,129
	1900	178	1,148,439	107	83,203	810	334,061	83,196	225,868	1,035,088
	1890	115	499,751	113	74,818	487	175,812	80,894	132,033	604,148
	1880					713	174,103			487,167
North Carolina.....	1905	258	1,274,037	237	163,569	971	404,103	179,258	382,376	1,653,432
	1900	203	793,142	157	96,313	819	285,644	82,588	243,577	1,039,175
	1890	133	539,602	89	59,558	556	208,296	94,764	149,053	680,085
	1880					704	182,929			523,264
South Carolina.....	1905	150	944,576	201	151,753	623	268,487	87,251	214,296	1,038,007
	1900	120	679,563	84	62,321	625	236,189	55,669	187,566	789,076
	1890	90	715,634	123	91,008	498	241,461	111,528	177,709	794,531
	1880					635	226,028			608,758
Georgia.....	¹ 1905	353	3,698,324	495	431,028	1,978	918,201	599,664	983,355	3,837,546
	1900	287	2,487,963	245	219,241	1,861	692,623	289,665	613,589	2,380,775
	1890	238	1,768,058	337	254,273	1,593	768,288	336,702	760,085	2,706,829
	1880					1,567	544,379			1,527,683
Florida.....	1905	155	1,413,734	173	172,891	543	271,267	139,218	269,931	1,139,103
	1900	100	538,743	63	55,966	406	179,758	39,299	155,317	603,410
	1890	86	435,855	91	76,946	468	204,719	76,002	122,122	567,808
	1880					197	49,253			132,700
North Central division										
	1905	11,304	126,150,591	22,147	20,243,034	70,378	38,467,080	31,460,439	44,713,505	168,968,975
	1900	9,832	93,308,926	14,157	11,913,024	62,448	29,156,715	16,949,609	30,181,722	117,866,556
	1890	7,238	64,313,166	10,962	9,501,825	51,872	26,604,134	14,222,305	25,053,451	94,395,614
	1880					47,534	18,549,161			53,688,231
Ohio.....	1905	1,476	23,249,302	3,719	3,330,792	12,134	6,508,118	4,898,325	7,633,622	28,206,648
	1900	1,253	17,851,109	2,053	1,794,533	11,021	5,313,707	2,691,366	5,656,367	20,391,868
	1890	987	11,634,222	1,830	1,517,417	9,026	4,436,561	2,095,626	5,244,793	17,188,851
	1880					10,293	3,828,631			12,689,013
Indiana.....	² 1905	850	9,277,286	1,562	1,256,504	5,704	2,892,739	1,896,500	2,991,651	11,140,379
	1900	793	6,236,710	914	790,450	5,387	2,342,735	1,098,706	2,130,713	8,427,763
	¹ 1890	578	3,269,117	739	600,524	3,405	1,499,592	601,492	1,144,009	4,649,475
	1880					4,166	1,435,440			3,868,136
Illinois.....	1905	2,289	38,478,147	7,526	7,352,188	20,178	12,294,261	12,998,170	15,395,833	57,518,082
	1900	2,006	25,995,886	4,855	4,278,682	17,986	8,767,901	6,804,460	9,577,425	39,449,032
	1890	1,386	18,409,044	2,846	2,829,839	14,228	8,323,536	5,639,404	8,838,617	32,060,913
	1880					11,295	5,138,611			14,379,624
Michigan.....	¹ 1905	910	7,815,406	1,555	1,313,322	5,412	2,672,700	1,643,782	2,983,053	10,892,967
	² 1900	792	6,762,863	1,342	906,610	4,487	1,978,681	819,079	1,701,676	7,484,770
	¹ 1890	604	4,454,908	757	565,868	3,941	1,785,925	1,108,489	1,265,927	5,851,030
	1880					3,858	1,352,848			3,633,961
Wisconsin.....	1905	726	6,605,200	1,025	871,365	3,891	1,910,139	1,233,456	2,015,937	7,564,008
	¹ 1900	597	5,315,377	478	414,227	3,395	1,459,270	541,927	1,225,415	5,074,998
	² 1890	447	3,242,995	609	453,816	2,710	1,111,456	697,273	974,047	4,028,641
	1880					2,988	961,680			2,683,235
Minnesota.....	¹ 1905	893	8,519,729	1,776	1,398,035	4,346	2,505,663	1,938,102	2,642,380	11,105,358
	¹ 1900	705	7,578,686	1,203	944,001	3,788	1,807,168	1,464,384	1,628,916	7,680,824
	¹ 1890	423	4,741,639	636	625,852	3,077	1,762,236	1,008,648	1,228,632	5,647,233
	1880					1,917	799,265			1,991,567
Iowa.....	² 1905	1,096	7,210,316	1,048	872,981	4,206	1,978,109	1,082,007	1,974,885	8,290,910
	¹ 1900	1,025	5,679,390	664	502,726	4,248	1,656,844	533,937	1,494,260	6,145,563
	¹ 1890	699	4,084,430	824	622,021	3,296	1,385,680	621,545	1,118,105	4,551,548
	1880					3,627	1,145,636			3,487,459
Missouri.....	1905	1,206	15,492,715	2,764	2,807,865	8,941	4,928,667	4,142,683	6,373,500	23,015,515
	1900	1,100	11,149,288	1,990	1,751,633	7,256	3,774,832	2,167,852	4,706,287	15,355,949
	1890	778	8,052,275	1,343	1,310,279	7,423	4,050,989	1,439,361	3,503,733	13,004,440
	1880					6,006	2,823,395			8,031,883
North Dakota ³	1905	229	1,078,649	76	69,326	515	312,566	122,369	236,988	1,110,439
	1900	140	625,902	48	41,657	382	176,631	61,508	170,381	719,950
	1890	78	491,274	64	51,325	273	152,027	59,106	112,769	503,782
South Dakota ³	1905	279	1,343,871	108	84,991	592	311,519	150,277	241,713	1,221,785
	1900	206	708,645	49	34,566	465	183,865	59,553	149,184	692,935
	¹ 1890	149	579,169	137	92,400	441	209,145	88,758	124,528	627,828
Dakota.....	1880					315	112,185			235,051
Nebraska.....	¹ 1905	629	3,599,790	578	581,513	2,065	1,089,973	867,486	1,293,310	4,973,902
	¹ 1900	554	2,885,583	349	307,875	1,883	882,673	459,278	949,404	3,431,582
	1890	443	2,517,133	524	407,400	1,771	949,302	469,338	732,139	3,222,368
	1880					1,063	418,170			1,132,005
Kansas.....	1905	721	3,480,180	410	304,152	2,394	1,062,626	487,312	930,633	3,928,982
	1900	661	2,519,487	212	146,064	2,150	812,458	247,559	791,694	3,011,322
	1890	666	2,836,960	653	425,084	2,281	937,685	392,765	766,252	3,059,505
	1880					2,006	533,300			1,526,397

¹ Does not include 1 establishment for music publishing, which, to avoid disclosing operations of individual establishments, was tabulated under "not distributed by states."

² Does not include 2 establishments for music publishing, which, to avoid disclosing operations of individual establishments, were tabulated under "not distributed by states."

³ See Dakota for 1880.

⁴ Does not include 3 book and job establishments, which, to avoid disclosing operations of individual establishments, were tabulated under "not distributed by states."

TABLE 67.—PRINTING AND PUBLISHING—COMPARATIVE SUMMARY, BY STATES, TERRITORIES, AND GEOGRAPHIC DIVISIONS: 1880 TO 1905—Continued.

STATE OR TERRITORY.	Census.	Number of establishments.	Capital.	SALARIED OFFICIALS, CLERKS, ETC.		WAGE-EARNERS AND WAGES.		Miscellaneous expenses.	Cost of materials used.	Value of products.
				Number.	Salaries.	Average number.	Wages.			
South Central division	1905	2,961	\$22,590,120	3,335	\$2,974,108	13,083	\$7,118,897	\$4,046,925	\$6,396,596	\$27,202,697
	1900	2,344	14,597,587	1,712	1,559,436	10,057	4,623,848	1,736,220	3,929,589	16,853,260
	1890	1,488	10,677,549	1,778	1,553,645	8,204	4,486,331	1,996,744	3,232,873	14,060,944
	1880					8,557	3,526,944			9,304,327
Kentucky	1905	302	4,762,981	676	614,387	2,553	1,275,902	747,942	1,161,034	4,768,351
	1900	330	3,421,357	440	389,961	1,863	797,177	395,928	814,095	3,241,203
	1890	240	2,777,725	339	315,885	1,858	972,744	423,237	639,597	3,010,136
	1880					2,288	724,249			2,757,933
Tennessee	1905	337	4,408,584	657	656,894	2,325	1,228,427	830,609	1,319,239	5,063,580
	1900	284	3,602,397	500	431,765	1,788	821,165	365,854	881,859	3,455,053
	1890	209	2,405,094	324	277,734	1,600	894,953	333,801	643,591	2,687,119
	1880					1,363	513,812			1,437,726
Alabama	1905	241	1,469,113	278	244,691	915	468,824	272,500	431,584	1,946,724
	1900	196	846,826	96	96,753	799	342,299	102,179	273,253	1,159,803
	1890	147	859,201	153	139,597	707	369,816	154,239	256,670	1,122,543
	1880					571	151,003			565,086
Mississippi	1905	211	732,560	70	53,399	549	253,611	79,503	194,823	916,043
	1900	181	474,957	36	28,705	505	193,674	35,911	147,413	722,594
	1890	118	307,667	91	56,372	303	106,060	46,230	75,156	394,637
	1880					593	167,757			519,393
Louisiana	1905	233	2,100,119	502	448,795	1,273	815,764	483,843	736,985	3,147,867
	1900	191	1,658,023	191	187,730	1,329	718,077	211,172	461,633	2,020,708
	1890	153	1,128,566	241	251,762	1,035	642,750	360,694	402,923	1,989,074
	1880					1,310	819,562			1,894,691
Arkansas	1905	277	1,314,691	104	92,555	895	437,812	172,174	320,149	1,443,138
	1900	230	777,748	73	57,237	704	264,766	90,019	237,294	1,013,807
	1890	151	553,479	124	95,741	536	251,590	128,009	195,706	816,208
	1880					547	142,578			417,103
Indian Territory	1905	163	476,952	61	47,353	352	175,747	62,466	121,637	607,782
	1900	58	115,003	5	1,900	138	48,389	10,467	31,872	174,069
	1890	8	23,790	1	300	22	9,328	3,245	6,811	26,912
	1880					14	3,000			6,300
Oklahoma	1905	260	1,223,101	113	87,299	787	398,635	276,031	351,585	1,492,865
	1900	102	395,108	41	30,446	384	140,121	21,502	115,902	488,913
	1890	15	46,145	9	4,340	74	27,791	17,736	14,398	72,905
Texas	1905	847	6,102,019	874	728,735	3,434	2,064,175	1,121,857	1,759,560	7,816,347
	1900	772	3,306,168	330	334,939	2,547	1,298,180	503,188	966,268	4,577,110
	1890	447	2,575,882	496	411,914	2,069	1,211,099	529,553	998,021	3,971,410
	1880					1,871	1,004,983			1,705,295
Western division	1905	2,537	22,112,533	4,279	4,346,659	12,397	9,402,268	5,290,117	7,910,185	34,990,304
	1900	1,841	14,126,906	1,951	1,925,375	9,448	5,586,633	1,958,580	4,355,254	19,211,282
	1890	1,144	10,886,182	1,606	1,730,387	7,629	5,724,421	2,339,173	3,481,857	16,173,618
	1880					6,275	3,900,478			10,282,532
Montana	1905	92	1,023,785	129	191,770	481	542,063	221,617	306,824	1,486,566
	1900	89	771,180	94	138,888	485	334,186	102,868	194,487	981,099
	1890	41	509,267	52	65,591	255	265,271	69,045	101,519	569,226
	1880					99	68,500			182,250
Idaho	1905	91	488,372	44	43,573	258	178,348	74,318	107,398	549,176
	1900	69	286,079	17	11,600	190	94,219	20,332	69,426	307,205
	1890	29	144,990	31	23,540	86	56,487	21,011	28,237	160,783
	1880					32	18,000			38,000
Wyoming	1905	47	266,343	29	32,508	119	84,389	39,691	51,986	313,105
	1900	38	143,620	6	5,644	86	47,840	12,806	32,308	157,789
	1890	21	133,642	26	26,616	67	55,902	24,258	29,529	191,227
	1880					46	25,900			47,300
Colorado	1905	416	3,593,408	614	700,421	1,886	1,335,018	731,017	1,309,031	5,452,435
	1900	278	2,566,030	358	340,014	1,800	1,078,595	430,871	785,099	3,561,754
	1890	187	1,481,506	252	267,850	1,177	968,689	282,806	579,013	2,641,174
	1880					805	473,915			1,322,610
New Mexico	1905	53	266,792	34	28,490	142	90,605	26,637	49,468	279,858
	1900	35	163,472	17	18,790	142	75,477	11,947	33,622	197,521
	1890	31	120,068	33	24,086	107	64,747	33,405	34,577	206,681
	1880					79	31,292			70,972
Arizona	1905	50	396,951	43	51,336	189	160,646	39,515	106,983	469,839
	1900	32	186,573	15	17,727	139	73,640	11,968	46,393	236,975
	1890	21	100,598	33	26,012	91	57,079	19,100	26,557	154,590
	1880					107	45,828			95,700
Utah	1905	101	1,049,497	231	230,494	519	355,257	276,418	311,708	1,466,549
	1900	80	822,874	95	82,891	548	287,563	107,320	203,328	770,848
	1890	31	674,404	76	86,830	409	268,999	119,049	144,332	734,623
	1880					316	183,441			391,683

¹ Does not include 1 establishment for music publishing, which, to avoid disclosing operations of individual establishments, was tabulated under "not distributed by states."

² Does not include 1 book and job establishment, which, to avoid disclosing operations of individual establishments, was tabulated under "not distributed by states."

³ Does not include 3 book and job establishments, which, to avoid disclosing operations of individual establishments, were tabulated under "not distributed by states."

⁴ Does not include 2 book and job establishments, which, to avoid disclosing operations of individual establishments, were tabulated under "not distributed by states."

TABLE 67.—PRINTING AND PUBLISHING—COMPARATIVE SUMMARY, BY STATES, TERRITORIES, AND GEOGRAPHIC DIVISIONS: 1880 TO 1905—Continued.

STATE OR TERRITORY.	Census.	Number of establishments.	Capital.	SALARIED OFFICIALS, CLERKS, ETC.		WAGE-EARNERS AND WAGES.		Miscellaneous expenses.	Cost of materials used.	Value of products.
				Number.	Salaries.	Average number.	Wages.			
Western division—Continued.										
Nevada.....	¹ 1905	29	\$167,637	21	\$22,300	67	\$63,878	\$19,199	\$32,908	\$252,897
	¹ 1900	29	92,372	3	2,400	68	35,024	6,570	17,669	111,052
	¹ 1890	11	73,290	7	7,784	56	50,941	14,323	15,227	106,497
	1880					259	246,578			446,812
Washington.....	1905	373	2,693,376	643	514,421	1,724	1,308,585	720,947	1,026,970	4,654,814
	1900	246	1,159,166	256	213,033	930	501,806	242,940	346,143	1,855,730
	1890	145	1,197,108	167	172,476	780	645,078	226,521	309,450	1,678,541
	1880					124	40,975			100,900
Oregon.....	1905	239	1,639,705	283	345,942	935	683,777	345,456	632,894	2,664,112
	1900	201	1,631,275	97	113,446	769	378,692	169,111	356,402	1,429,991
	1890	130	860,576	154	167,021	707	518,593	195,215	267,041	1,382,519
	1880					430	193,497			501,089
California.....	² 1905	1,046	10,526,667	2,203	2,185,404	6,077	4,599,702	2,795,302	3,974,015	17,400,953
	1900	744	6,304,265	993	980,942	4,291	2,679,591	835,847	2,270,377	9,601,313
	² 1890	497	5,590,733	775	862,581	3,894	2,772,635	1,334,440	1,946,375	8,347,757
	1880					3,978	2,572,552			7,086,216
Not distributed by states.....	³ 1905	17	67,130	10	4,299	17	7,809	44,512	9,587	105,001
	⁴ 1900	20	154,120	26	15,068	91	41,162	16,048	49,100	170,123
	⁵ 1890	19	131,964	23	19,140	93	40,269	23,744	84,786	207,741

¹ Does not include 2 book and job establishments, which, to avoid disclosing operations of individual establishments, were tabulated under "not distributed by states."

² Does not include 1 establishment for music publishing, which, to avoid disclosing operations of individual establishments, was tabulated under "not distributed by states."

³ Includes establishments distributed as follows: Book and job—Nevada, 2; New Mexico, 3. Music—California, 1; Georgia, 1; Indiana, 2; Iowa, 2; Maryland, 1; Michigan, 1; Minnesota, 1; Nebraska, 1; New Jersey, 1; Tennessee, 1.

⁴ Includes establishments distributed as follows: Book and job—Arizona, 2; Indian Territory, 1; Nevada, 2; New Mexico, 2; Wyoming, 1. Music—Delaware, 1; Iowa, 2; Louisiana, 1; Maryland, 1; Michigan, 2; Minnesota, 1; Nebraska, 1; Virginia, 2; Wisconsin, 1.

⁵ Includes establishments distributed as follows: Book and job—Nevada, 2; South Dakota, 3. Music—California, 1; Indiana, 1; Iowa, 1; Michigan, 1; Minnesota, 1; Missouri, 2. Tip—Connecticut, 2; Maryland, 1; Massachusetts, 2; Pennsylvania, 2.

TABLE 68.—PRINTING AND PUBLISHING—VALUE OF PRODUCTS FOR EACH CLASS OF ESTABLISHMENT, WITH AMOUNT AND PER CENT OF INCREASE, BY STATES, TERRITORIES, AND GEOGRAPHIC DIVISIONS: 1905 AND 1900.

STATE OR TERRITORY.	AGGREGATE.				NEWSPAPER AND PERIODICAL PRODUCTS.				TOTAL BOOK AND JOB PRODUCTS. ¹			
	Increase.				Increase.				Increase.			
	1905	1900	Amount.	Per cent.	1905	1900	Amount.	Per cent.	1905	1900	Amount.	Per cent.
Continental United States..	\$496,061,357	\$347,054,430	\$149,006,927	42.9	\$256,816,282	\$175,789,610	\$81,026,672	46.1	\$239,245,075	\$171,264,820	\$67,980,255	39.7
North Atlantic division..	242,625,110	177,013,357	65,611,753	37.1	124,781,692	88,792,576	35,989,116	40.5	117,843,418	88,220,781	29,622,637	33.6
New England.....	46,764,193	39,555,643	7,208,550	18.2	23,839,744	18,548,042	5,291,702	28.5	22,924,449	21,007,601	1,916,848	9.1
Maine.....	3,272,331	2,605,387	666,944	25.6	2,267,533	1,876,214	391,319	20.9	1,004,798	729,173	275,625	37.8
New Hampshire.....	957,424	885,676	71,748	8.1	521,747	507,663	14,084	2.8	425,677	378,013	57,664	15.3
Vermont.....	931,518	777,111	154,407	19.9	462,854	371,110	91,744	24.7	468,664	406,001	62,663	15.4
Massachusetts.....	33,900,748	29,372,314	4,528,434	15.4	16,924,654	13,170,875	3,753,779	28.5	16,976,094	16,201,439	774,655	4.8
Rhode Island.....	2,759,983	1,908,323	851,660	44.6	1,360,505	866,401	494,104	57.0	1,399,478	1,041,922	357,556	34.3
Connecticut.....	4,942,189	4,006,832	935,357	23.3	2,302,451	1,755,779	546,672	31.1	2,639,738	2,251,053	388,685	17.3
Southern North Atlantic.....	195,860,917	137,457,714	58,403,203	42.5	100,941,948	70,244,534	30,697,414	43.7	94,918,969	67,213,180	27,705,789	41.2
New York.....	137,985,751	95,232,051	42,753,700	44.9	71,634,706	49,216,268	22,418,438	45.6	66,351,045	46,015,783	20,335,262	44.2
New Jersey.....	8,106,626	5,770,034	2,336,592	40.5	3,438,585	2,663,899	774,686	29.1	4,668,041	3,106,135	1,561,906	50.3
Pennsylvania.....	49,768,540	36,455,629	13,312,911	36.5	25,868,557	18,364,367	7,504,290	40.9	23,899,883	18,091,262	5,808,621	32.1
South Atlantic division..	22,169,270	15,939,552	6,229,718	39.1	11,807,779	8,480,006	3,327,773	39.2	10,361,491	7,459,846	2,901,645	38.9
Delaware.....	398,005	329,799	68,206	20.7	194,377	174,933	19,444	11.1	203,628	154,866	48,762	31.5
Maryland.....	5,493,112	4,871,289	621,823	12.8	2,748,826	2,263,338	485,488	21.5	2,744,286	2,607,951	136,335	5.2
District of Columbia.....	3,831,535	2,661,636	1,169,899	44.0	1,978,119	1,680,643	297,476	17.0	1,853,416	1,700,993	152,423	9.0
Virginia.....	3,224,401	2,229,604	994,797	44.6	1,404,937	907,025	497,912	54.9	1,819,464	1,322,579	496,885	37.6
West Virginia.....	1,554,129	1,035,088	519,041	50.1	909,230	576,493	332,737	57.7	644,899	458,595	186,304	40.6
North Carolina.....	1,653,432	1,039,175	614,257	59.1	981,635	610,418	371,217	60.8	671,797	428,757	243,040	56.7
South Carolina.....	1,038,007	789,076	248,931	31.5	620,662	404,068	216,594	53.6	417,345	372,482	44,863	12.0
Georgia.....	3,837,546	2,380,775	1,456,771	61.2	2,330,185	1,441,968	888,217	61.6	1,507,361	938,807	568,554	60.6
Florida.....	1,139,103	603,410	535,693	88.8	639,808	398,594	241,214	60.5	499,295	204,816	294,479	143.8
North Central division..	168,968,975	117,866,556	51,102,419	43.4	83,833,602	57,049,471	26,784,131	46.9	85,135,373	60,817,085	24,318,288	40.0
Ohio.....	28,206,648	20,391,868	7,814,780	38.3	13,840,238	9,643,982	4,196,256	43.5	14,366,410	10,747,886	3,618,524	33.7
Indiana.....	11,140,379	8,427,763	2,712,616	32.2	5,662,457	3,912,514	1,749,943	44.7	5,477,922	4,515,249	962,673	21.3
Illinois.....	57,518,082	39,449,032	18,069,050	45.8	25,170,484	16,386,952	8,783,532	53.6	32,347,618	23,062,080	9,285,538	40.3
Michigan.....	10,892,967	7,484,770	3,408,197	45.5	5,543,790	3,819,560	1,724,230	45.1	5,349,177	3,665,210	1,683,967	45.9
Wisconsin.....	7,564,008	5,074,998	2,489,010	49.0	4,024,435	2,900,231	1,124,204	38.8	3,539,573	2,174,767	1,364,806	62.8
Minnesota.....	11,105,358	7,680,824	3,424,534	44.6	6,138,869	3,981,874	2,156,995	54.2	4,966,489	3,698,590	1,267,899	34.3
Iowa.....	8,290,910	6,145,563	2,145,347	34.9	4,942,002	3,777,690	1,164,312	30.8	3,348,908	2,367,873	981,035	41.4
Missouri.....	23,015,515	15,355,949	7,659,566	49.9	11,930,393	8,144,216	3,786,177	46.5	11,085,122	7,211,733	3,873,389	53.7
North Dakota.....	1,110,439	719,950	390,489	54.2	647,675	420,195	227,480	54.1	462,764	299,755	163,009	54.4
South Dakota.....	1,221,785	692,935	528,850	76.3	752,208	475,668	276,540	58.1	469,577	272,267	197,310	116.1
Nebraska.....	4,973,902	3,431,582	1,542,320	44.9	2,803,210	1,887,933	915,277	48.5	2,170,692	1,543,649	627,043	40.6
Kansas.....	3,928,982	3,011,322	917,660	30.5	2,377,861	1,688,656	689,205	40.0	1,551,121	1,312,666	238,455	18.2
South Central division..	27,202,697	16,853,260	10,349,437	61.4	15,062,302	9,693,618	5,368,684	55.4	12,140,395	7,159,642	4,980,753	69.6
Kentucky.....	4,768,351	3,241,203	1,527,148	47.1	2,455,870	1,818,706	637,164	35.0	2,312,481	1,422,497	889,984	62.6
Tennessee.....	5,063,580	3,455,053	1,608,527	46.6	2,609,657	1,715,886	893,771	52.1	2,453,923	1,739,167	714,756	41.1
Alabama.....	1,946,724	1,159,803	786,921	67.8	1,224,752	704,787	519,965	73.8	721,972	455,036	266,936	58.7
Mississippi.....	916,043	722,594	193,449	26.8	543,774	395,068	148,706	37.6	372,269	327,526	44,743	13.7
Louisiana.....	3,147,867	2,020,708	1,127,159	55.8	1,830,313	1,300,338	529,975	40.8	1,317,554	720,370	597,184	82.9
Arkansas.....	1,443,138	1,013,807	429,331	42.3	800,646	532,869	267,777	50.3	642,492	480,938	161,554	33.6
Indian Territory.....	607,782	433,713	174,069	28.7	374,774	263,858	110,916	29.7	233,008	169,855	63,153	269.0
Oklahoma.....	1,492,865	488,913	1,003,952	205.3	769,591	250,681	518,910	207.0	723,274	238,232	485,042	203.6
Texas.....	7,816,347	4,577,110	3,239,237	70.8	4,452,925	2,864,387	1,588,538	55.5	3,363,422	1,712,723	1,650,699	96.4
Western division.....	34,990,304	19,211,282	15,779,022	82.1	21,330,907	11,773,939	9,556,968	81.2	13,659,397	7,437,343	6,222,054	83.7
Montana.....	1,486,566	981,099	505,467	51.5	1,052,309	705,229	347,080	49.2	434,257	275,870	158,387	57.4
Idaho.....	549,176	307,205	241,971	78.8	354,558	199,948	154,610	77.3	194,618	107,257	87,361	81.5
Wyoming.....	313,105	157,789	155,316	98.4	212,349	108,851	103,498	95.1	100,756	48,938	51,818	105.9
Colorado.....	5,452,435	3,561,754	1,890,681	53.1	3,324,556	2,105,892	1,218,664	57.9	2,127,879	1,455,862	672,017	46.2
New Mexico.....	279,858	197,521	82,337	41.7	180,661	128,839	51,822	40.2	99,197	68,682	30,515	44.4
Arizona.....	469,839	236,975	232,864	98.3	304,000	170,083	133,917	78.7	165,839	66,892	98,947	147.9
Utah.....	1,466,549	770,848	695,701	90.3	936,097	455,498	480,599	105.5	530,452	315,350	215,102	68.2
Nevada.....	252,897	111,052	141,845	127.7	192,057	93,702	98,355	105.0	60,840	17,350	43,490	250.7
Washington.....	4,654,814	1,855,730	2,799,084	150.8	2,951,015	1,178,721	1,772,294	150.4	1,703,799	677,009	1,026,790	151.7
Oregon.....	2,664,112	1,429,991	1,234,121	86.3	1,681,290	825,455	855,835	103.7	982,822	604,536	378,286	62.6
California.....	17,400,953	9,601,318	7,799,635	81.2	10,142,015	5,801,721	4,340,294	74.8	7,258,938	3,799,597	3,459,341	91.0
Not distributed by states..	105,001	170,123	65,122	38.3					105,001	170,123	65,122	38.3

¹ No separation into exclusive and combination establishments for 1900, but all miscellaneous printing and book and job printing done in newspaper and periodical establishments included with job printing.

² Decrease.

TABLE 69.—PRINTING AND PUBLISHING—VALUE OF PRODUCTS FOR EACH CLASS OF ESTABLISHMENT, BY STATES, TERRITORIES, AND GEOGRAPHIC DIVISIONS: 1905.

STATE OR TERRITORY.	Aggregate.	ESTABLISHMENTS PRODUCING EXCLUSIVELY—		ESTABLISHMENTS PRODUCING BOTH—		All other products of newspaper establishments. ¹
		Book and job products.	Newspaper and periodical products.	Book and job products.	Newspaper and periodical products.	
Continental United States.....	\$496,061,357	\$186,759,503	\$184,736,800	\$46,471,339	\$72,079,482	\$6,014,233
North Atlantic division.....	242,625,110	92,774,399	94,869,929	22,284,338	29,911,763	2,784,681
New England.....	46,764,193	17,452,765	19,542,360	4,757,394	4,297,384	714,290
Maine.....	3,272,331	627,770	1,518,129	368,894	749,404	8,134
New Hampshire.....	957,424	242,969	216,201	185,106	305,546	7,602
Vermont.....	931,518	236,733	194,403	190,167	268,451	41,764
Massachusetts.....	33,900,748	12,880,511	14,803,916	3,479,480	2,120,738	616,103
Rhode Island.....	2,759,983	1,289,680	1,238,791	100,543	121,714	9,255
Connecticut.....	4,942,189	2,175,102	1,670,920	433,204	731,531	31,432
Southern North Atlantic.....	195,860,917	75,321,634	75,327,569	17,526,944	25,614,379	2,070,391
New York.....	137,985,751	52,229,011	53,557,988	12,595,117	18,076,718	1,526,917
New Jersey.....	8,106,626	3,618,254	1,944,464	1,006,709	1,494,121	43,078
Pennsylvania.....	49,768,540	19,474,369	19,825,117	3,925,118	6,043,540	500,396
South Atlantic division.....	22,169,270	8,045,240	7,883,425	2,177,324	3,924,354	138,927
Delaware.....	398,005	152,274	129,710	50,580	64,667	774
Maryland.....	5,493,112	2,273,757	1,783,115	454,107	965,711	16,422
District of Columbia.....	3,831,535	1,740,377	1,895,426	104,027	82,693	9,012
Virginia.....	3,224,401	1,555,962	1,028,638	235,918	376,299	27,584
West Virginia.....	1,554,129	291,639	214,001	321,445	695,229	31,815
North Carolina.....	1,653,432	391,409	500,383	269,742	481,242	10,646
South Carolina.....	1,038,007	193,606	269,898	210,562	350,764	13,177
Georgia.....	3,837,546	1,179,656	1,750,702	312,143	579,483	15,562
Florida.....	1,139,103	266,560	311,542	218,800	328,266	13,935
North Central division.....	168,968,975	67,785,600	58,121,354	15,022,127	25,712,248	2,327,646
Ohio.....	28,206,648	11,798,271	9,647,474	2,228,791	4,192,764	339,348
Indiana.....	11,140,379	3,889,657	3,384,990	1,336,740	2,277,467	251,525
Illinois.....	57,518,082	28,873,101	20,688,720	3,069,950	4,481,744	404,567
Michigan.....	10,892,967	3,962,967	3,571,860	1,148,382	1,971,930	237,828
Wisconsin.....	7,564,008	2,002,705	1,812,308	1,368,120	2,212,127	168,748
Minnesota.....	11,105,358	3,406,129	4,113,054	1,267,906	2,025,815	292,454
Iowa.....	8,290,910	1,632,151	1,775,424	1,435,859	3,166,578	280,898
Missouri.....	23,015,515	9,864,352	10,397,616	1,021,721	1,532,777	199,049
North Dakota.....	1,110,439	158,206	98,184	269,927	549,491	34,631
South Dakota.....	1,221,785	116,436	190,054	321,580	562,154	31,561
Nebraska.....	4,973,902	1,272,137	1,718,157	853,352	1,085,053	45,203
Kansas.....	3,928,982	809,488	723,513	699,799	1,654,348	41,834
South Central division.....	27,202,697	8,103,867	9,547,095	3,609,146	5,515,207	427,382
Kentucky.....	4,768,351	1,896,362	1,801,803	348,261	654,067	67,858
Tennessee.....	5,063,580	1,675,405	1,840,025	615,895	769,632	162,623
Alabama.....	1,946,724	539,046	951,042	176,540	273,710	6,386
Mississippi.....	916,043	115,817	166,492	251,453	377,282	4,999
Louisiana.....	3,147,867	1,081,081	1,497,689	233,309	332,624	3,164
Arkansas.....	1,443,138	257,592	216,158	370,231	584,488	14,669
Indian Territory.....	607,782	19,265	10,020	212,894	364,754	849
Oklahoma.....	1,492,865	143,906	158,012	488,737	611,579	90,631
Texas.....	7,816,347	2,375,393	2,905,854	911,826	1,547,071	76,203
Western division.....	34,990,304	9,945,396	14,314,997	3,378,404	7,015,910	335,597
Montana.....	1,486,566	118,675	135,539	298,227	916,770	17,355
Idaho.....	549,176	21,200	7,908	166,803	346,650	6,615
Wyoming.....	313,105	21,524	58,009	75,017	154,340	4,215
Colorado.....	5,452,435	1,613,865	2,468,715	410,966	855,841	103,048
New Mexico.....	279,858	(²)	13,500	98,597	167,161	600
Arizona.....	469,839	78,800	50,516	82,899	253,484	4,140
Utah.....	1,466,549	332,693	701,748	152,135	234,349	45,624
Nevada.....	252,897	(²)	12,544	59,800	179,513	1,040
Washington.....	4,654,814	1,239,832	1,965,591	442,598	985,424	21,369
Oregon.....	2,664,112	754,807	1,229,157	205,913	452,133	22,102
California.....	17,400,953	5,764,000	7,671,770	1,385,449	2,470,245	109,489
Not distributed by states.....	105,001	105,001				

¹ Includes \$974,788 of book and job products done in exclusive newspaper and periodical establishments, and music—items included in book and job in other tables.

² Included in "not distributed by states."

TABLE 70.—BOOK AND JOB PRINTING (INCLUDING MUSIC)—COMPARATIVE SUMMARY.

STATE OR TERRITORY.	Cen- sus.	Number of estab- lish- ments.	Capital.	SALARIED OFFICIALS, CLERKS, ETC.		WAGE-EARNERS AND WAGES.	
				Number.	Salaries.	Average number.	Wages.
Continental United States.....	1905	8,389	\$145,502,655	16,188	\$15,908,871	88,323	\$49,061,030
	1900	7,006	100,072,934	10,220	9,074,928	68,388	33,916,903
	1890	4,204	69,117,560	8,271	8,495,583	50,861	27,985,960
	1880	3,468	63,003,704	(^a)	(^a)	58,506	30,541,657
North Atlantic division.....	1905	3,885	78,147,089	7,934	7,918,867	40,888	23,284,791
	1900	3,361	54,336,570	4,503	4,217,337	33,060	17,452,738
	1890	2,200	39,833,632	4,449	4,751,034	25,565	14,112,858
	1880	1,654	36,513,653			30,467	15,755,053
New England.....	1905	1,043	14,572,648	1,496	1,455,004	8,886	4,832,145
	1900	991	12,589,118	1,302	1,095,082	7,699	3,991,675
	1890	646	7,411,968	967	855,365	5,187	2,694,871
	1880	478	6,657,869			7,287	3,943,373
Maine.....	1905	91	551,984	50	36,072	425	194,858
	1900	79	363,434	21	15,248	276	122,247
	1890	36	177,686	37	27,652	136	53,256
	1880	48	747,600			640	297,005
New Hampshire.....	1905	55	211,245	13	14,017	161	80,430
	1900	52	132,273	2	1,750	90	36,584
	1890	35	123,392	30	18,886	67	26,428
	1880	29	270,050			198	88,088
Vermont.....	1905	40	173,641	12	11,949	160	68,549
	1900	41	176,447	22	14,710	145	58,251
	1890	23	105,875	22	14,502	95	44,478
	1880	18	99,600			130	42,727
Massachusetts.....	1905	601	10,758,744	1,154	1,112,185	6,111	3,431,269
	1900	594	9,228,533	1,054	880,356	5,587	2,992,770
	1890	423	5,211,183	681	611,469	3,709	1,965,110
	1880	281	3,732,869			5,022	2,784,813
Rhode Island.....	1905	79	925,372	125	137,402	713	360,790
	1900	72	699,677	71	70,659	621	280,418
	1890	40	421,763	74	65,976	336	169,302
	1880	32	361,850			484	280,900
Connecticut.....	1905	177	1,951,662	142	143,379	1,816	696,249
	1900	153	1,988,754	132	112,359	980	501,405
	1890	89	1,372,069	123	116,880	844	436,297
	1880	70	1,445,900			813	449,835
Southern North Atlantic.....	1905	2,842	63,574,441	6,438	6,463,863	32,002	18,452,646
	1900	2,370	41,747,452	3,201	3,122,255	25,361	13,461,063
	1890	1,554	32,421,664	3,482	3,895,669	20,378	11,417,987
	1880	1,176	29,855,784			23,180	11,811,680
New York.....	1905	1,738	41,571,273	4,350	4,566,535	21,280	12,885,728
	1900	1,434	25,101,887	2,008	2,035,214	16,488	9,385,236
	1890	983	17,962,696	2,280	2,681,337	13,508	8,038,126
	1880	712	20,027,989			14,417	8,059,487
New Jersey.....	1905	232	3,759,679	250	224,051	1,844	1,024,868
	1900	183	1,929,935	165	152,230	1,447	624,079
	1890	76	779,621	118	115,281	673	323,378
	1880	93	865,475			1,061	477,224
Pennsylvania.....	1905	872	18,243,489	1,838	1,673,277	8,878	4,542,050
	1900	753	14,715,630	1,028	934,811	7,426	3,451,748
	1890	495	13,679,347	1,084	1,099,051	6,197	3,056,483
	1880	371	8,962,320			7,702	3,274,969
South Atlantic division.....	1905	554	6,629,163	742	656,971	4,703	2,096,314
	1900	480	5,050,981	419	356,559	4,151	1,659,743
	1890	288	3,618,955	474	387,484	5,031	3,246,752
	1880	228	4,260,400			4,366	2,638,918
Delaware.....	1905	13	162,531	10	6,298	95	48,711
	1900	13	145,449	12	8,644	88	40,606
	1890	11	153,925	18	13,065	102	42,802
	1880	2	18,000			13	5,580
Maryland.....	1905	142	1,568,540	216	181,936	1,384	603,507
	1900	156	1,364,894	152	136,790	1,304	535,907
	1890	102	738,811	151	126,081	784	296,145
	1880	66	2,045,600			933	443,989
District of Columbia.....	1905	76	991,322	140	146,330	613	344,465
	1900	72	794,400	36	30,620	684	340,495
	1890	51	1,200,579	66	56,582	3,033	2,437,824
	1880	28	971,800			1,742	1,478,880
Virginia.....	1905	103	1,921,465	180	148,360	995	421,651
	1900	86	1,481,259	107	93,571	682	282,982
	1890	48	585,215	81	71,329	393	161,093
	1880	45	344,900			534	237,918
West Virginia.....	1905	37	278,064	16	14,518	193	98,231
	1900	31	98,289	15	9,996	103	38,643
	1890	12	61,641	11	7,674	57	20,904
	1880	18	137,000			204	74,432

¹ Includes tip printing.² Includes postal cards.

BY STATES, TERRITORIES, AND GEOGRAPHIC DIVISIONS: 1880 TO 1905.

TYPECASTING AND TYPESETTING MACHINES.		Number of hand compos- itors.	Miscellane- ous expenses.	COST OF MATERIALS USED.				VALUE OF PRODUCTS.				
Number of ma- chines.	Number of oper- ators.			Total.	Paper and job stock.	Ink.	All other materials.	Total.	Book and pamphlet publications.	Job printing.	Miscellane- ous printing.	
1,387	1,992	29,819	\$34,831,172 17,353,229 11,244,729 (*)	\$53,116,330 36,641,256 29,903,593 32,660,395	\$39,993,973	\$2,136,443	\$0,985,914	\$186,759,503 124,070,861 95,592,765 90,979,341	\$38,614,551	\$116,642,845	\$31,502,107	1 2 3 4
706	925	13,733	20,467,103 17,085,929 9,920,131 6,402,996	24,231,540 17,085,929 14,073,526 18,605,226	18,105,790	1,000,593	5,015,157	92,774,399 63,743,586 49,459,043 51,074,908	24,039,284	54,361,878	13,713,237	5 6 7 8
71	85	3,598	3,106,563 2,753,919 1,321,750	4,829,283 4,165,838 2,884,952 4,511,252	3,513,025	171,323	1,144,725	17,452,765 16,231,096 9,715,714 11,735,120	3,883,018	11,198,671	2,371,076	9 10 11 12
1	2	173	59,604 30,258 18,126	203,178 133,485 50,252 976,317	127,300	5,193	72,379	627,770 415,370 175,311 1,606,098	76,905	410,280	140,619	13 14 15 16
		91	18,723 9,119 7,481	66,337 38,636 38,756 91,076	49,282	1,521	15,534	242,969 133,116 113,777 264,750	45,695	166,014	31,260	17 18 19 20
		80	25,980 16,696 13,130	76,182 72,967 54,226 62,086	67,329	2,211	6,642	236,733 230,120 165,772 131,799	1,270	226,448	9,085	21 22 23 24
45	58	2,428	2,643,120 2,316,557 1,118,064	3,368,502 2,993,329 2,078,012 2,821,983	2,471,937	135,856	777,649	12,880,511 12,607,214 7,393,333 7,947,260	3,567,477	7,649,109	1,663,865	25 26 27 28
7	6	261	129,171 64,763 52,210	434,224 362,039 175,799 218,120	270,012	10,034	154,128	1,289,680 967,517 528,224 674,025	75,435	934,421	279,824	29 30 31 32
18	19	565	229,965 316,526 112,739	678,860 565,352 488,087 341,670	543,909	16,658	118,393	2,175,102 1,877,759 1,339,297 1,111,188	116,336	1,812,373	246,423	33 34 35 36
635	840	10,135	17,360,540 7,166,212 5,081,246	19,402,257 13,530,091 11,188,574 14,093,974	14,592,755	879,070	3,930,432	75,321,634 47,512,490 39,743,329 39,339,788	20,816,266	43,163,207	11,342,161	37 38 39 40
486	634	6,676	13,403,480 5,166,615 2,482,066	12,315,243 8,852,559 6,793,719 9,518,171	9,082,397	619,632	2,613,214	52,229,011 32,266,975 24,763,030 27,885,376	15,823,372	28,188,474	8,217,165	41 42 43 44
23	30	594	441,760 110,700 5,569	1,204,731 695,122 427,758 418,758	969,057	56,034	179,300	3,618,254 2,038,966 1,103,344 1,224,519	103,154	2,751,345	700,755	45 46 47 48
126	176	2,865	3,515,680 1,888,567 2,540,611	5,882,623 2,932,410 3,967,097 4,157,045	4,541,301	203,404	1,137,918	19,474,369 13,206,549 13,871,955 10,229,893	4,886,740	12,223,388	2,364,241	49 50 51 52
107	153	1,873	1,192,655 509,361 216,388	2,374,551 1,888,775 2,201,527 2,046,892	1,945,128	83,122	346,303	8,045,240 5,697,230 6,904,914 6,272,413	1,436,632	5,521,167	1,057,441	53 54 55 56
1	1	42	18,759 7,991 5,966	44,803 29,381 19,437 6,500	34,877	1,473	8,458	152,274 110,615 104,600 14,500	46,320	96,036	9,918	57 58 59 60
28	32	494	197,428 201,606 60,955	808,269 839,567 374,014 585,857	655,618	33,532	119,059	2,273,757 2,252,490 1,167,634 1,477,164	56,500	1,815,899	401,358	61 62 63 64
16	22	278	604,385 69,867 68,701	234,004 195,469 1,256,934 827,519	204,582	8,680	20,742	1,740,377 815,101 3,914,547 2,896,312	891,676	812,385	36,316	65 66 67 68
25	43	414	175,782 135,977 69,628	538,196 332,221 223,973 211,854	442,501	16,353	79,342	1,555,962 1,084,027 618,788 624,975	331,317	959,532	265,063	69 70 71 72
8	15	84	24,049 7,635 6,511	69,697 38,355 17,268 46,764	58,490	2,510	8,697	291,639 127,932 66,786 185,756	11,500	234,076	46,063	73 74 75 76

* Not reported separately.

† Not reported.

TABLE 70.—BOOK AND JOB PRINTING (INCLUDING MUSIC)—COMPARATIVE SUMMARY.

STATE OR TERRITORY.	Cen- sus.	Number of estab- lish- ments.	Capital.	SALARIED OFFICIALS, CLERKS, ETC.		WAGE-EARNERS AND WAGES.	
				Number.	Salaries.	Average number.	Wages.
South Atlantic division—Continued.							
North Carolina.....	1905	55	\$271,311	38	\$28,711	268	\$114,771
	1900	38	147,710	12	8,462	166	54,703
	1890	13	89,725	9	5,830	69	25,434
	1880	31	95,600			202	63,120
South Carolina.....	1905	23	259,066	17	16,310	152	62,013
	1900	22	245,308	28	19,690	212	79,265
	1890	14	276,930	47	35,651	125	59,433
	1880	14	132,700			242	115,947
Georgia.....	1905	75	959,268	98	90,022	840	337,673
	1900	54	635,150	49	41,916	811	241,745
	1890	34	481,329	86	63,772	429	189,065
	1880	21	506,800			453	213,052
Florida.....	1905	30	217,596	27	24,486	154	70,292
	1900	14	138,522	8	6,870	101	45,392
	1890	3	30,800	5	7,500	39	14,052
	1880	3	8,000			15	6,000
North Central division.....	1905	2,790	47,497,734	5,995	5,936,780	33,407	18,027,660
	1900	2,312	33,466,549	4,641	3,807,263	25,218	11,842,496
	1890	1,232	20,970,895	2,675	2,650,213	16,800	8,596,960
	1880	1,202	16,918,086			18,937	9,023,226
Ohio.....	1905	532	9,188,564	862	870,583	5,937	3,000,970
	1900	416	6,523,244	597	517,106	4,661	2,194,111
	1890	263	3,896,133	529	490,443	3,035	1,399,971
	1880	237	4,688,535			4,980	2,067,593
Indiana.....	1905	181	3,260,088	324	296,985	2,404	1,244,752
	1900	155	1,444,871	249	175,414	1,808	558,676
	1890	73	762,442	116	112,088	777	350,209
	1880	99	1,126,320			1,490	689,590
Illinois.....	1905	899	18,140,851	2,565	2,687,893	12,973	7,504,973
	1900	747	13,736,317	1,961	1,853,360	10,508	5,063,650
	1890	390	8,695,020	1,019	1,096,021	6,553	3,026,275
	1880	243	3,626,400			4,712	2,401,894
Michigan.....	1905	247	3,090,103	359	312,627	2,264	1,090,809
	1900	201	2,648,103	506	221,077	1,571	876,138
	1890	98	1,018,621	153	121,570	877	405,479
	1880	114	1,374,625			1,419	623,175
Wisconsin.....	1905	131	1,561,736	198	182,601	1,165	543,799
	1900	102	924,389	67	65,154	716	285,028
	1890	68	597,065	99	84,177	492	195,371
	1880	82	729,800			1,008	429,777
Minnesota.....	1905	179	2,489,295	535	330,783	1,776	996,342
	1900	145	1,196,561	270	193,615	1,074	502,939
	1890	82	1,048,380	149	148,499	934	531,952
	1880	78	817,845			739	409,104
Iowa.....	1905	135	1,287,801	165	137,464	848	410,814
	1900	115	976,341	141	103,761	855	345,665
	1890	56	582,720	102	80,726	442	182,495
	1880	146	1,125,086			900	498,229
Missouri.....	1905	317	6,624,829	811	944,312	4,824	2,593,682
	1900	286	4,641,488	726	621,368	3,498	1,718,684
	1890	182	3,473,785	390	405,104	3,085	1,548,718
	1880	131	2,949,660			2,791	1,538,564
North Dakota ¹	1905	10	106,274	16	16,540	63	42,492
	1900	9	72,850	3	3,462	56	33,535
South Dakota ²	1905	7	125,399	17	13,209	55	34,798
	1900	8	70,806	6	4,190	43	19,409
Nebraska.....	1905	70	925,729	79	83,465	645	359,054
	1900	62	633,028	72	65,061	549	256,076
	1890	31	373,645	61	59,256	316	172,083
	1880	22	191,250			301	167,438
Kansas.....	1905	82	697,065	64	60,318	453	205,175
	1900	66	598,851	43	38,695	384	188,675
	1890	39	523,084	57	52,329	289	178,397
	1880	50	289,565			507	197,862
South Central division.....	1905	499	6,175,770	786	663,188	4,818	2,580,027
	1900	397	3,500,331	339	318,573	3,150	1,387,987
	1890	217	2,550,952	362	347,838	1,770	982,750
	1880	178	2,981,600			2,607	1,464,510
Kentucky.....	1905	100	1,615,954	216	171,019	1,335	631,844
	1900	82	737,502	73	64,110	709	275,438
	1890	66	380,512	69	48,979	328	133,227
	1880	48	1,401,700			932	452,113
Tennessee.....	1905	77	971,009	128	141,968	964	523,572
	1900	67	980,155	97	102,625	837	364,747
	1890	31	696,735	68	67,543	499	277,613
	1880	30	625,550			462	248,356

¹No establishments reported in 1890 and 1880.

PRINTING AND PUBLISHING.

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BY STATES, TERRITORIES, AND GEOGRAPHIC DIVISIONS: 1880 TO 1905—Continued.

TYPECASTING AND TYPESETTING MACHINES.		Number of hand compos- itors.	Miscellane- ous expenses.	COST OF MATERIALS USED.				VALUE OF PRODUCTS.				
Number of ma- chines.	Number of oper- ators.			Total.	Paper and job stock.	Ink.	All other materials.	Total.	Book and pamphlet publications.	Job printing.	Miscellane- ous printing.	
8	11	126	\$23,356 8,811 5,309	\$118,569 86,633 32,303 55,392	\$96,956	\$3,556	\$18,057	\$391,409 211,750 84,450 179,132	\$42,519	\$305,183	\$43,707	77 78 79 80
3	4	74	12,290 15,302 28,109	68,486 89,790 102,954 89,450	52,945	1,452	14,059	193,606 278,547 275,604 299,520		184,100	9,506	81 82 83 84
15	24	289	119,031 46,248 36,539	416,637 242,669 222,814 218,306	335,224	13,099	68,314	1,179,656 693,726 628,805 679,054	48,250	914,118	217,288	85 86 87 88
3	4	72	17,575 7,524 2,670	75,887 34,690 11,830 5,250	63,935	2,377	9,575	266,560 123,042 43,700 16,000	8,550	199,788	58,222	89 90 91 92
423	663	10,844	11,221,698 6,187,907 4,030,364	20,996,494 14,026,667 11,516,093 9,496,418	15,725,616	802,267	4,468,611	67,785,600 44,856,399 32,701,823 26,031,533	11,484,936	43,554,534	12,746,130	93 94 95 96
85	128	2,140	1,714,859 958,070 413,946	3,794,404 2,773,361 2,839,986 2,382,305	3,025,481	156,003	612,920	11,798,271 8,202,228 6,260,341 6,579,565	1,570,111	8,576,189	1,651,971	97 98 99 100
29	44	662	411,653 521,519 60,897	1,426,831 688,499 369,580 703,984	989,896	43,574	393,361	3,889,657 2,334,572 1,059,962 1,832,023	562,368	2,509,467	817,822	101 102 103 104
145	253	3,909	5,968,176 3,136,415 2,357,327	8,485,187 5,439,291 4,837,994 2,807,361	6,168,391	347,935	1,968,861	28,873,101 20,044,077 14,712,068 7,114,939	6,611,033	16,312,049	5,950,019	105 106 107 108
22	33	652	580,142 227,672 407,488	1,318,681 677,823 350,406 503,890	1,012,383	53,070	253,228	3,962,967 2,365,030 1,500,082 1,576,523	341,386	2,740,812	880,769	109 110 111 112
18	22	452	252,608 79,143 122,407	637,669 322,827 239,270 337,290	502,421	30,890	104,358	2,002,705 971,583 771,744 1,093,510	168,170	1,639,943	194,592	113 114 115 116
33	54	590	400,984 245,041 116,692	968,864 554,982 457,381 351,941	678,817	42,022	248,025	3,406,129 1,890,676 1,490,207 1,043,664	834,930	2,119,538	451,661	117 118 119 120
14	16	382	201,378 89,247 74,085	552,883 411,711 254,341 514,380	445,007	14,496	93,380	1,632,151 1,210,110 732,925 1,399,289	85,562	1,311,902	234,687	121 122 123 124
57	88	1,625	1,382,688 782,512 396,041	3,079,128 2,501,502 1,795,605 1,615,048	2,306,539	93,366	679,223	9,864,352 6,101,852 5,083,553 4,452,962	1,155,124	6,459,133	2,250,095	125 126 127 128
2	3	23	17,558 10,588	51,151 51,379	42,494	1,508	7,149	158,206 132,061	10,890	108,986	38,330	129 130
		23	14,918 4,049	39,887 22,118	31,839	773	7,275	116,436 59,810	1,500	91,912	23,024	131 132
12	15	224	183,755 81,612 36,799	387,100 324,932 162,219 167,860	321,032	11,737	54,331	1,272,137 878,531 546,185 419,461	133,400	1,050,087	88,650	133 134 135 136
6	7	162	92,979 52,039 44,682	254,709 258,242 209,311 212,359	201,316	6,893	46,500	809,488 662,869 544,756 519,597	10,462	634,516	164,510	137 138 139 140
68	106	1,617	825,573 330,816 214,990	2,668,509 1,509,200 1,145,530 1,243,235	1,986,866	87,338	594,305	8,103,867 4,686,624 3,368,763 3,669,472	88,358	5,687,033	2,328,476	141 142 143 144
18	25	411	172,210 70,835 157,884 28,172	625,027 389,095 157,884 476,214	462,675	23,239	139,113	1,896,362 1,000,479 457,435 1,289,316	42,903	1,357,553	495,906	145 146 147 148
16	19	311	153,478 64,964 41,961	611,836 435,319 275,091 213,026	504,391	23,928	83,517	1,675,405 1,249,941 854,891 653,645	7,225	1,130,972	537,208	149 150 151

*Included in "not distributed by states" in 1890. No establishments reported in 1880.

MANUFACTURES.

TABLE 70.—BOOK AND JOB PRINTING (INCLUDING MUSIC)—COMPARATIVE SUMMARY,

STATE OR TERRITORY.		Cen- sus.	Number of estab- lish- ments.	Capital.	SALARIED OFFICIALS, CLERKS, ETC.		WAGE-EARNERS AND WAGES.	
					Number.	Salaries.	Average number.	Wages.
South Central division—Continued.								
153	Alabama.....	1905	57	\$388,487	38	\$30,745	373	\$190,126
154		1900	40	224,974	16	16,944	256	100,774
155		1890	26	192,237	36	35,234	177	102,412
156		1880	19	77,100			91	40,920
157	Mississippi.....	1905	21	126,135	9	7,764	73	40,401
158		1900	16	69,915	8	5,740	65	29,239
159		1890	4	9,910	4	1,857	6	2,537
160		1880	11	96,500			125	58,721
161	Louisiana.....	1905	62	733,939	98	92,925	643	344,858
162		1900	57	525,875	64	57,793	456	185,182
163		1890	37	313,483	72	75,373	267	131,761
164		1880	25	303,050			524	407,946
165	Arkansas.....	1905	18	263,885	13	13,961	147	92,722
166		1900	13	128,865	14	12,332	104	49,356
167		1890	7	53,130	12	10,419	24	14,170
168		1880	6	29,800			59	23,530
169	Indian Territory ¹	1905	10	20,960			8	4,774
170	Oklahoma ²	1905	16	109,168	6	6,181	63	35,278
171		1900	4	5,950			5	1,100
172	Texas.....	1905	138	1,946,233	278	198,625	1,212	716,452
173		1900	118	827,095	67	59,029	718	382,151
174		1890	56	904,945	101	108,433	469	321,030
175		1880	39	447,900			414	232,924
176	Western division.....	1905	644	6,985,769	721	728,766	4,490	3,064,429
177		1900	430	3,564,383	292	300,128	2,713	1,532,777
178		1890	198	2,011,162	288	339,874	1,602	1,006,381
179		1880	206	2,329,965			2,129	1,659,950
180	Montana ³	1905	9	83,999	3	4,800	58	42,654
181		1900	11	55,195	3	4,100	30	23,384
182		1880	1	2,000			5	1,800
183	Idaho ²	1905	6	16,450	1	900	9	6,060
184		1900	3	5,275			3	1,400
185	Wyoming ¹	1905	3	24,157	1	1,200	9	7,569
186	Colorado.....	1905	90	1,158,831	85	108,507	833	539,770
187		1900	66	814,593	72	77,040	497	308,213
188		1890	28	259,640	39	54,948	169	117,290
189		1880	5	181,450			188	135,570
190	Arizona ¹	1905	4	56,300	4	2,700	34	24,588
191	Utah.....	1905	27	253,647	28	28,005	169	102,915
192		1900	18	143,593	17	15,122	117	52,389
193		1890	10	137,306	21	25,224	86	51,328
194		1880	7	159,660			148	94,861
195	Nevada ⁴	1880	4	73,500			57	84,240
196	Washington.....	1905	101	845,678	122	90,703	535	394,019
197		1900	58	363,052	39	37,059	304	186,306
198		1890	20	161,926	32	34,016	118	99,711
199		1880	3	9,500			15	6,000
200	Oregon.....	1905	53	565,392	58	68,010	302	209,759
201		1900	42	319,012	25	26,515	159	86,113
202		1890	19	207,157	27	29,341	134	99,384
203		1880	15	65,600			87	65,067
204	California.....	1905	351	3,981,315	419	423,941	2,541	1,737,095
205		1900	232	1,863,663	136	140,292	1,608	874,972
206		1890	121	1,245,133	169	196,345	1,095	638,668
207		1880	171	1,838,255			1,629	1,272,412
208	Not distributed by states.....	⁵ 1905	17	67,130	10	4,299	17	7,809
209		⁶ 1900	20	154,120	26	15,068	91	41,162
210		⁷ 1890	19	131,964	23	19,140	93	40,269

¹Included in "not distributed by states" in 1900. No establishments reported in 1890 and 1880.²No establishments reported in 1890 and 1880.³No establishments reported in 1890.⁴Included in "not distributed by states" in 1905, 1900, and 1890.⁵Includes establishments distributed as follows: Book and job—Nevada, 2; New Mexico, 3. Music—California, 1; Georgia, 1; Indiana, 2; Iowa, 2; Maryland, 1; Michigan, 1; Minnesota, 1; Nebraska, 1; New Jersey, 1; Tennessee, 1.

PRINTING AND PUBLISHING.

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BY STATES, TERRITORIES, AND GEOGRAPHIC DIVISIONS: 1880 TO 1905—Continued.

TYPECASTING AND TYPESETTING MACHINES.		Number of hand compos- itors.	Miscellane- ous expenses.	COST OF MATERIALS USED.				VALUE OF PRODUCTS				
Number of ma- chines.	Number of oper- ators.			Total.	Paper and job stock.	Ink.	All other materials.	Total.	Book and pamphlet publications.	Job printing.	Miscellane- ous printing.	
3	6	165	\$45,333 17,288 18,585	\$164,852 114,376 97,115 65,546	\$136,389	\$4,345	\$24,118	\$539,046 318,767 312,966 141,175	\$10,400	\$476,042	\$52,604	153
1	2	30	8,583 4,539 725	39,002 33,088 3,397 38,661	32,676	856	5,470	115,817 162,497 9,840 138,500	10,080	91,358	14,379	157
10	23	198	82,262 49,789 34,874	350,875 154,212 114,077 226,600	249,643	14,206	87,026	1,081,081 583,970 441,123 764,036	11,000	824,124	245,957	161
4	5	56	31,075 10,758 3,590	78,865 65,315 14,580 15,750	62,663	2,755	13,447	257,592 174,020 78,620 77,800		225,235	32,357	165
		5	2,164	5,413	4,805	141	467	19,265	250	18,195	820	166
		29	17,766 770	44,992 2,709	28,715	802	15,475	143,906 7,250		131,548	12,358	167
16	20	409	312,702 111,863 85,083	747,647 334,886 483,386 207,438	504,909	17,066	225,672	2,375,393 1,189,700 1,213,888 605,000	6,500	1,422,006	936,887	168
83	142	1,743	1,079,631 397,366 294,247	2,835,647 1,471,585 822,131 1,268,624	2,224,312	112,902	498,433	9,945,396 4,919,899 2,950,481 3,931,015	905,341	7,489,001	1,551,054	169
1	2	33	7,622 6,415	37,535 20,917 1,500	32,792	1,166	3,577	118,675 69,431 4,500		111,557	7,118	170
		7	2,686 1,078	5,225 2,404	4,755	125	345	21,200 7,400		21,200		171
1	2	5	2,160	6,603	5,080	104	1,419	21,524		16,786	4,738	172
23	27	260	150,850 107,272 25,469	469,178 277,200 139,455 95,750	345,781	20,425	102,972	1,613,865 1,036,316 430,117 307,500	50,000	1,170,837	393,028	173
		17	2,487	36,630	31,464	335	4,831	78,800		56,300	22,500	174
1	2	79	31,009 15,191 8,916	107,463 65,038 30,379 72,054	86,446	3,435	17,582	332,693 177,286 142,818 214,625	6,200	265,878	60,515	175
				5,250				108,012				176
12	25	209	162,684 40,034 21,145	317,411 139,603 75,323 2,700	240,180	11,079	66,152	1,239,832 534,686 278,477 13,500	70,358	974,273	195,201	177
2	4	146	79,903 28,831 22,553	252,861 116,289 57,228 37,015	219,109	6,959	26,793	754,807 351,654 251,757 133,900	16,050	582,779	155,978	178
43	80	987	640,230 198,545 216,164	1,602,741 850,134 519,746 1,054,355	1,258,705	69,274	274,762	5,764,000 2,743,126 1,847,312 3,148,978	762,633	4,289,391	711,976	179
		9	44,512 16,048 23,744	9,587 49,100 84,786	6,261	221	3,105	105,001 170,123 207,741		29,232	75,769	180

⁶Includes establishments distributed as follows: Book and job—Arizona, 2; Indian Territory, 1; Nevada, 2; New Mexico, 2; Wyoming, 1. Music—Delaware, 1; Iowa, 2; Louisiana, 1; Maryland, 1; Michigan, 2; Minnesota, 1; Nebraska, 1; Virginia, 2; Wisconsin, 1.

⁷Includes establishments distributed as follows: Book and job—Nevada, 2; South Dakota, 3. Music—California, 1; Indiana, 1; Iowa, 1; Michigan, 1; Minnesota, 1; Wisconsin, 2. Tip—Connecticut, 2; Maryland, 1; Massachusetts, 2; Pennsylvania, 2.

TABLE 71.—BOOK AND JOB PRINTING¹—SUMMARY FOR CITIES HAVING A POPULATION IN 1900 OF 50,000 OR OVER: 1905 AND 1900.

CITY.	Census.	Number of establishments.	Capital.	SALARIED OFFICIALS, CLERKS, ETC.		WAGE-EARNERS AND WAGES.		Miscellaneous expenses.	Cost of materials used.	Value of products.
				Number.	Salaries.	Average number.	Wages.			
New York, N. Y.	1905 1900	1,229 996	\$34,723,942 19,107,954	3,549 1,552	\$3,907,443 1,689,166	17,129 12,857	\$10,697,273 7,730,447	\$11,700,801 4,404,740	\$10,366,820 7,206,921	\$43,806,389 26,484,933
Chicago, Ill.	1905 1900	697 594	16,061,020 12,640,430	2,222 1,816	2,436,923 1,750,818	11,484 9,531	6,816,681 4,674,796	5,411,231 2,947,234	7,825,000 4,955,114	26,200,564 18,536,364
Philadelphia, Pa.	1905 1900	423 401	12,739,917 11,539,833	1,211 844	1,207,771 775,094	6,004 5,327	3,072,479 2,508,317	2,831,430 1,626,292	4,303,293 2,948,999	13,964,080 10,066,740
St. Louis, Mo.	1905 1900	184 173	5,247,608 3,560,128	599 524	730,151 481,141	3,515 2,329	1,932,530 1,129,757	1,159,818 648,828	2,404,785 2,016,560	7,705,160 4,420,147
Boston, Mass.	1905 1900	270 280	5,021,362 5,870,499	729 708	655,405 582,807	3,022 3,077	1,721,646 1,663,282	1,817,597 1,723,336	1,516,200 1,752,274	6,872,366 8,183,215
Baltimore, Md.	1905 1900	124 142	1,461,304 1,285,980	211 148	177,801 133,600	1,276 1,178	575,612 505,903	189,563 196,111	770,009 690,446	2,164,562 2,037,037
Cleveland, Ohio.	1905 1900	89 69	1,626,150 1,107,419	222 150	249,484 141,306	1,273 981	724,776 496,319	174,267 117,084	842,386 700,052	2,366,858 1,787,106
Buffalo, N. Y.	1905 1900	99 87	861,928 1,617,303	101 101	91,618 92,661	753 1,071	369,687 522,369	162,102 137,789	319,909 475,302	1,293,112 1,455,933
San Francisco, Cal.	1905 1900	164 105	2,690,615 1,370,577	210 104	267,131 109,514	1,679 1,183	1,189,815 667,566	454,866 137,002	1,015,178 656,344	3,849,459 2,022,649
Cincinnati, Ohio.	1905 1900	138 115	2,727,879 1,630,554	274 127	288,672 127,762	2,030 1,617	1,031,746 784,122	384,377 177,234	1,376,375 866,618	3,801,464 2,613,458
Pittsburg, Pa.	1905 1900	107 67	2,137,739 1,100,015	266 90	231,286 75,076	1,285 886	744,306 434,481	277,167 116,728	693,666 613,223	2,398,490 1,396,292
New Orleans, La.	1905 1900	47 51	655,766 507,670	89 61	83,879 57,218	573 452	308,479 183,062	70,427 48,889	266,371 150,577	897,174 573,987
Detroit, Mich.	1905 1900	93 91	1,313,074 927,233	170 426	144,667 165,476	1,031 831	508,959 394,301	309,563 128,950	624,334 383,633	1,901,994 1,417,275
Milwaukee, Wis.	1905 1900	72 58	1,170,357 746,478	163 59	152,334 57,924	877 562	424,561 225,622	215,773 65,785	443,378 242,234	1,520,099 750,896
Washington, D. C.	1905 1900	76 72	991,322 794,400	140 36	146,330 30,620	613 684	344,465 340,495	604,385 69,867	234,004 195,469	1,740,377 815,101
Newark, N. J.	1905 1900	50 54	1,641,576 624,712	130 104	114,547 89,403	678 493	373,111 203,380	286,776 37,570	472,117 185,153	1,498,569 674,321
Jersey City, N. J.	1905 1900	34 18	769,232 454,023	41 27	32,768 29,004	355 442	228,483 175,166	27,526 22,195	278,927 206,977	796,377 488,795
Louisville, Ky.	1905 1900	49 45	1,383,769 631,577	189 60	152,691 60,257	1,173 601	567,323 235,535	149,582 59,249	557,119 319,998	1,655,201 854,547
Minneapolis, Minn.	1905 1900	89 73	977,333 474,357	262 63	150,962 57,296	776 548	421,632 253,200	212,809 68,706	387,577 209,474	1,426,441 770,839
Providence, R. I.	1905 1900	49 47	563,460 421,297	87 48	97,168 53,539	511 446	256,511 201,182	87,294 22,091	310,512 250,706	901,872 667,328
Indianapolis, Ind.	1905 1900	51 47	1,205,976 911,693	185 159	153,270 119,842	861 746	463,419 351,393	198,698 472,194	500,284 385,885	1,572,688 1,536,652
Kansas City, Mo.	1905 1900	73 63	895,395 720,010	154 166	160,934 114,805	908 804	488,093 419,784	145,055 102,835	483,729 333,089	1,518,483 1,187,253
St. Paul, Minn.	1905 1900	54 47	1,262,505 577,999	234 195	158,176 127,902	803 395	486,462 188,808	148,665 163,324	483,374 289,164	1,637,452 923,909
Rochester, N. Y.	1905 1900	57 52	906,597 495,819	100 47	85,216 23,828	558 362	254,000 130,402	117,620 80,006	321,180 137,846	995,725 524,296
Denver, Colo.	1905 1900	69 52	929,310 604,486	72 56	92,883 59,274	699 390	453,639 251,561	129,104 92,676	376,211 183,266	1,350,867 808,895
Toledo, Ohio.	1905 1900	31 24	391,053 248,690	62 36	47,142 23,257	275 208	132,291 96,746	49,006 30,551	175,777 100,109	473,734 337,239
Allegheny, Pa.	1905 1900	16 16	136,948 79,566	10 7	13,045 4,728	88 87	41,015 40,394	14,138 10,800	42,491 42,482	138,081 129,289
Columbus, Ohio.	1905 1900	32 22	433,524 172,060	74 29	61,148 22,082	389 206	196,978 97,045	69,459 17,874	176,096 91,188	603,263 282,915
Worcester, Mass.	1905 1900	27 31	299,399 195,851	35 7	40,342 13,018	131 148	73,463 84,552	33,434 35,514	79,585 84,629	311,669 271,625
Syracuse, N. Y.	1905 1900	39 29	499,048 346,280	25 24	29,160 17,672	254 212	137,990 94,890	36,449 26,816	166,340 136,567	499,081 336,384
New Haven, Conn.	1905 1900	35 35	479,270 513,982	41 47	39,882 31,474	367 285	218,409 127,832	54,560 132,459	146,939 184,999	583,569 583,889
Paterson, N. J.	1905 1900	15 12	62,967 45,796	12 -----	1,800 -----	33 29	13,416 11,756	5,606 6,821	26,634 11,147	68,477 43,465
Fall River, Mass.	1905 1900	9 9	58,715 50,938	4 2	3,280 1,018	43 37	22,280 18,669	4,819 6,110	28,505 22,815	78,730 66,584

¹ Exclusive of printing and publishing, music.

² Exclusive of Governmental establishments.

TABLE 71.—BOOK AND JOB PRINTING¹—SUMMARY FOR CITIES HAVING A POPULATION IN 1900 OF 50,000 OR OVER:
1905 AND 1900—Continued.

CITY.	Census.	Number of establishments.	Capital.	SALARIED OFFICIALS, CLERKS, ETC.		WAGE-EARNERS AND WAGES.		Miscellaneous expenses.	Cost of materials used.	Value of products.
				Number.	Salaries.	Average number.	Wages.			
St. Joseph, Mo.....	1905	10	\$200,764	24	\$27,000	224	\$97,296	\$34,708	\$99,550	\$306,085
	1900	9	169,150	20	14,420	240	121,529	12,374	96,359	302,060
Omaha, Nebr.....	1905	38	657,443	57	61,057	440	267,258	80,289	275,743	851,385
	1900	38	459,714	59	55,737	395	196,739	66,326	228,717	668,567
Los Angeles, Cal.....	1905	86	732,397	155	122,183	573	362,181	128,600	424,007	1,278,841
	1900	47	182,626	18	18,158	230	114,143	30,807	106,470	391,370
Memphis, Tenn.....	1905	21	333,431	19	26,726	233	135,584	22,576	173,442	447,433
	1900	17	225,750	15	23,529	215	92,370	16,589	118,849	354,647
Scranton, Pa.....	1905	20	141,820	31	10,100	87	36,498	18,373	42,171	151,035
	1900	13	74,898	3	1,280	50	22,715	5,715	21,464	66,717
Lowell, Mass.....	1905	10	60,669	8	4,470	50	29,161	20,689	30,740	105,027
	1900	16	64,932	8	2,811	53	28,592	7,873	29,435	85,790
Albany, N. Y.....	1905	31	1,143,165	81	83,014	1,051	582,186	254,343	358,293	1,630,262
	1900	29	1,253,446	77	68,202	685	347,876	181,168	332,316	1,244,810
Cambridge, Mass.....	1905	21	1,455,877	57	92,322	890	533,872	85,534	617,882	1,564,660
	1900	17	961,932	84	54,371	873	468,527	97,649	455,284	1,242,492
Portland, Oreg.....	1905	37	508,897	58	68,010	275	193,455	75,779	235,067	696,788
	1900	32	285,972	25	26,515	140	76,753	25,945	105,600	315,506
Atlanta, Ga.....	1905	27	582,245	56	54,162	536	211,156	82,051	281,845	748,872
	1900	17	365,085	31	28,160	409	150,562	26,613	143,149	405,964
Grand Rapids, Mich.....	1905	26	446,766	40	52,650	385	201,852	69,376	200,938	598,993
	1900	22	199,437	20	21,530	244	88,739	26,651	84,609	278,431
Dayton, Ohio.....	1905	23	384,839	57	46,456	286	129,546	46,129	178,794	477,786
	1900	18	277,477	59	39,899	186	85,500	55,415	173,335	431,840
Richmond, Va.....	1905	30	1,159,817	96	85,618	459	203,996	123,251	302,317	832,506
	1900	18	1,048,768	64	55,223	291	142,035	95,913	147,009	538,682
Nashville, Tenn.....	1905	18	453,068	77	87,920	510	282,523	108,498	321,688	890,482
	1900	18	595,143	55	57,616	371	186,294	34,898	224,391	613,439
Seattle, Wash.....	1905	41	455,992	42	38,630	326	243,496	62,450	173,598	658,054
	1900	22	164,738	23	20,149	161	98,230	23,231	81,969	285,688
Hartford, Conn.....	1905	41	906,017	64	68,084	469	269,101	108,090	280,051	880,211
	1900	38	1,038,315	49	55,293	442	236,111	151,533	252,420	876,854
Reading, Pa.....	1905	16	137,051	34	9,858	66	31,476	30,472	41,768	165,289
	1900	17	121,637	-----	-----	63	27,485	7,062	35,020	99,447
Wilmington, Del.....	1905	11	152,431	8	5,872	93	48,549	18,394	43,435	148,399
	1900	12	134,875	12	8,644	85	39,589	7,475	27,905	106,245
Camden, N. J.....	1905	15	90,450	3	2,058	39	20,145	4,976	20,679	69,872
	1900	14	68,357	5	2,866	37	13,696	3,544	19,195	58,252
Tranton, N. J.....	1905	20	113,708	2	1,900	70	42,227	10,020	38,481	126,802
	1900	10	155,838	6	4,016	75	38,401	7,127	31,422	109,744
Bridgeport, Conn.....	1905	11	81,377	9	11,625	66	33,795	6,502	32,266	114,457
	1900	11	72,672	10	8,180	56	24,902	6,318	25,036	87,282
Lynn, Mass.....	1905	16	102,015	8	9,800	106	55,676	10,549	49,609	160,136
	1900	14	104,141	8	6,050	83	41,751	7,381	44,829	141,452
Oakland, Cal.....	1905	18	134,036	23	14,680	79	51,224	13,671	36,891	161,108
	1900	16	47,295	5	3,800	43	17,839	5,200	19,454	69,009
Lawrence, Mass.....	1905	5	13,675	3	2,250	18	7,625	1,813	6,650	22,500
	1900	6	20,470	1	750	14	6,625	1,673	8,719	22,199
New Bedford, Mass.....	1905	9	64,794	8	4,424	42	18,878	8,494	27,531	88,317
	1900	8	29,613	4	1,928	26	11,658	2,279	15,456	46,550
Des Moines, Iowa.....	1905	24	342,260	46	46,858	274	144,470	69,974	182,542	530,578
	1900	22	313,060	40	36,164	357	155,160	27,516	170,413	463,934
Springfield, Mass.....	1905	24	635,371	113	127,306	224	120,724	228,595	146,674	747,073
	1900	22	565,986	121	120,686	189	103,890	214,166	132,963	750,710
Somerville, Mass.....	1905	8	17,900	-----	-----	9	5,423	1,643	7,711	21,876
	1900	5	7,200	-----	-----	3	2,514	EXD	2,882	12,765
Troy, N. Y.....	1905	13	124,792	13	8,569	76	39,093	11,690	44,738	135,223
	1900	14	123,073	10	6,630	84	39,045	10,612	26,556	127,467
Hoboken, N. J.....	1905	15	52,050	2	1,040	34	23,922	6,120	14,840	58,840
	1900	10	26,740	-----	-----	20	11,669	2,249	13,341	44,799
Evansville, Ind.....	1905	8	145,041	22	18,892	93	42,532	17,194	51,518	147,722
	1900	7	81,627	10	7,721	94	34,666	7,064	44,147	109,815
Manchester, N. H.....	1905	11	33,350	-----	-----	31	14,947	3,077	12,856	40,734
	1900	13	29,125	-----	-----	30	14,100	2,951	11,439	38,639
Utica, N. Y.....	1905	15	138,742	19	11,752	102	48,305	14,222	57,343	164,014
	1900	16	123,000	16	8,958	116	49,458	14,295	59,608	179,169

¹ Exclusive of printing and publishing, music.

MANUFACTURES.

TABLE 71.—BOOK AND JOB PRINTING¹—SUMMARY FOR CITIES HAVING A POPULATION IN 1900 OF 50,000 OR OVER:
1905 AND 1900—Continued.

CITY.	Census.	Number of establishments.	Capital.	SALARIED OFFICIALS, CLERKS, ETC.		WAGE-EARNERS AND WAGES.		Miscellaneous expenses.	Cost of materials used.	Value of products.
				Number.	Salaries.	Average number.	Wages.			
Peoria, Ill.	1905	13	\$173,650	19	\$23,324	187	\$82,350	\$21,656	\$84,468	\$269,919
	1900	12	143,340	14	12,016	169	72,566	9,244	88,758	226,576
Charleston, S. C.	1905	8	197,171	15	14,426	110	46,059	8,710	51,356	138,098
	1900	7	182,417	22	15,990	121	49,542	11,145	72,390	203,032
Savannah, Ga.	1905	9	99,582	10	9,462	88	46,744	12,864	38,757	145,797
	1900	5	72,320	3	3,696	75	32,961	6,896	34,800	91,430
Salt Lake City, Utah	1905	14	178,447	25	25,785	112	74,334	26,417	80,263	255,833
	1900	10	117,273	16	14,082	96	44,689	13,082	52,795	144,644
San Antonio, Tex.	1905	14	180,440	18	23,640	200	94,174	31,035	103,450	300,947
	1900	11	123,757	11	13,390	191	107,548	8,665	90,116	290,900
Duluth, Minn.	1905	15	176,710	35	16,845	127	61,458	30,383	59,140	231,269
	1900	10	82,262	9	7,317	93	49,193	10,376	31,057	133,614
Erie, Pa.	1905	14	650,971	26	23,168	285	143,713	18,390	166,179	394,877
	1900	10	106,512	2	624	71	33,652	3,644	28,180	108,904
Elizabeth, N. J.	1905	5	35,780	7	3,496	31	14,391	3,285	9,356	39,350
	1900	4	31,350	—	—	22	8,700	1,483	14,186	32,766
Wilkesbarre, Pa.	1905	10	226,380	17	18,717	136	63,043	15,382	60,674	192,941
	1900	11	147,857	8	5,604	80	40,594	6,031	31,554	103,182
Kansas City, Kans.	1905	6	35,850	—	—	25	8,676	7,004	18,214	50,060
	1900	5	12,400	—	—	12	5,443	1,171	6,170	18,300
Harrisburg, Pa.	1905	15	376,811	69	43,785	194	91,697	90,801	59,898	471,252
	1900	14	219,921	9	8,009	198	89,891	24,047	57,336	210,155
Portland, Me.	1905	25	299,850	46	31,436	263	121,475	45,045	142,079	405,342
	1900	22	188,830	20	14,884	159	78,727	19,711	79,218	244,789

¹ Exclusive of printing and publishing, music.

MANUFACTURES.

TABLE 72.—NEWSPAPERS AND PERIODICALS—COMPARATIVE SUMMARY, BY

STATE OR TERRITORY.	Census.	Number of establishments.	Number of publications.	Capital.	SALARIED OFFICIALS, CLERKS, ETC.		WAGE-EARNERS AND WAGES.		TYPECASTING AND TYPESETTING MACHINES.		Number of hand compositors.	Miscellaneous expenses.
					Number.	Salaries.	Number.	Wages.	Number of machines.	Number of operators.		
Continental United States...	1905	18,033	21,394	\$239,505,949	48,781	\$47,127,711	96,857	\$59,821,488	6,793	8,842	40,708	\$67,635,238
	1900	15,305	18,226	192,443,708	27,579	27,015,791	94,604	50,333,051	3,988	5,803	49,311	38,544,642
	1890	12,362	14,901	126,269,885	20,120	17,777,173	85,975	50,824,359				35,727,039
	1880	(²)	11,314	(³)	(⁴)	(⁵)	71,615	28,559,336				(⁶)
North Atlantic division...	1905	3,802	4,886	115,640,919	24,068	24,722,818	37,771	25,413,039	2,883	3,657	13,169	37,388,405
	1900	3,309	4,165	100,449,656	13,575	14,863,730	37,489	22,884,212	1,916	2,509	17,496	23,405,483
	1890	3,294	4,266	59,987,463	8,002	7,477,060	33,199	21,935,040				20,460,692
	1880		3,501				27,593	13,016,775				
New England.....	1905	844	1,161	20,651,338	4,442	4,557,649	9,306	5,967,976	767	978	3,557	6,585,473
	1900	800	1,025	16,800,780	2,778	2,609,976	9,387	5,702,655	512	744	4,578	4,316,275
	1890	815	1,105	11,827,874	1,940	1,650,596	8,318	4,895,393				3,949,369
	1880		902				6,589	3,189,009				
Maine.....	1905	115	158	1,555,165	249	216,901	1,278	522,494	71	105	340	913,876
	1900	120	177	1,668,820	219	182,099	1,309	473,026	44	76	576	480,690
	1890	105	146	1,140,152	394	198,259	949	433,900				244,936
	1880		123				1,036	317,006				
New Hampshire.....	1905	68	124	856,895	73	71,563	475	248,162	30	40	209	121,471
	1900	75	88	1,018,753	65	63,084	571	261,871	23	38	336	63,072
	1890	83	111	754,183	78	54,910	573	262,854				114,013
	1880		87				412	119,203				
Vermont.....	1905	64	100	602,251	102	87,781	444	202,940	30	49	188	76,924
	1900	61	79	500,698	71	50,135	436	176,748	10	17	281	53,113
	1890	55	70	455,393	65	51,588	338	157,106				55,691
	1880		82				371	92,959				
Massachusetts.....	1905	420	566	13,551,342	3,283	3,518,041	5,437	3,916,634	435	535	2,249	4,970,219
	1900	396	486	10,392,258	2,141	2,027,034	5,432	3,769,204	291	408	2,571	3,301,822
	1890	409	558	7,531,827	1,122	1,055,603	4,874	3,088,704				3,070,184
	1880		427				3,416	2,074,749				
Rhode Island.....	1905	48	57	1,363,323	276	188,180	539	308,337	59	78	137	141,906
	1900	32	40	930,593	44	51,909	488	318,219	34	62	245	122,974
	1890	40	54	661,944	78	74,416	501	300,478				192,815
	1880		44				443	206,526				
Connecticut.....	1905	129	156	2,722,362	459	475,183	1,133	769,409	142	162	425	361,077
	1900	116	155	2,289,658	238	235,655	1,151	703,587	110	143	569	294,604
	1890	123	156	1,284,375	203	215,520	1,083	652,351				271,730
	1880		139				911	378,866				
Southern North Atlantic	1905	2,958	3,725	94,989,581	19,626	20,165,169	28,465	19,445,063	2,116	2,679	9,612	30,802,932
	1900	2,509	3,140	83,648,876	10,797	12,253,754	28,102	17,181,557	1,404	1,765	12,918	19,089,208
	1890	2,479	3,161	48,159,589	6,062	5,826,404	24,881	17,039,647				16,511,323
	1880		2,599				21,004	9,827,766				
New York.....	1905	1,497	1,897	62,378,289	14,713	15,380,216	16,214	12,299,127	1,186	1,490	5,014	24,849,475
	1900	1,206	1,477	55,486,474	7,415	9,096,420	16,460	10,924,755	799	1,018	6,810	15,178,916
	1890	1,263	1,627	29,716,028	3,808	3,870,025	14,278	11,063,107				11,281,003
	1880		1,411				12,402	6,460,071				
New Jersey.....	1905	325	376	4,537,558	754	721,991	2,128	1,276,211	192	231	1,003	431,542
	1900	261	298	4,210,257	354	344,461	2,077	1,162,033	108	115	1,277	289,011
	1890	224	263	2,373,213	408	345,798	1,791	1,019,578				477,214
	1880		215				1,364	454,533				
Pennsylvania.....	1905	1,136	1,452	28,073,734	4,159	4,062,962	10,123	5,869,725	738	968	3,595	5,521,915
	1900	1,042	1,365	23,952,145	3,028	2,812,873	9,565	5,094,769	497	632	4,831	3,621,281
	1890	992	1,271	16,070,348	1,846	1,610,641	8,812	4,956,962				4,753,106
	1880		973				7,238	2,913,162				
South Atlantic division...	1905	1,362	1,567	13,671,059	2,454	2,169,826	5,943	3,092,320	473	587	2,752	2,576,254
	1900	1,118	1,324	10,491,896	1,456	1,240,190	6,248	2,844,903	251	444	3,232	1,410,839
	1890	895	1,016	5,938,534	1,097	852,181	5,243	2,660,514				1,247,726
	1880		984				5,329	1,713,664				
Delaware.....	1905	33	34	350,063	52	40,310	172	76,149	20	20	92	28,660
	1900	26	30	275,298	45	29,656	220	86,208	11	15	133	17,201
	1890	26	32	241,104	39	29,806	176	78,344				22,776
	1880		26				190	55,279				
Maryland.....	1905	160	195	2,713,061	664	620,249	1,076	633,972	101	129	422	716,125
	1900	141	166	2,473,094	388	383,027	1,529	758,335	82	151	639	349,663
	1890	113	124	1,395,133	208	187,020	1,043	659,799				307,413
	1880		143				1,163	486,958				
District of Columbia..	1905	55	63	2,043,320	365	424,566	428	333,215	56	63	152	533,400
	1900	60	69	2,233,897	301	289,566	600	393,220			242	411,596
	1890	13	17	537,502	79	83,730	418	306,001				123,440
	1880		44				343	205,924				
Virginia.....	1905	196	231	1,464,811	305	214,955	524	384,762	58	60	383	325,269
	1900	162	204	1,126,738	178	107,831	771	338,618	43	64	444	167,482
	1890	157	185	756,320	176	115,449	723	326,682				173,345
	1880		194				961	261,362				

¹ Does not include sheet music and books of music, which in this table are included in "all other products."² Not reported.

STATES, TERRITORIES, AND GEOGRAPHIC DIVISIONS: 1880 TO 1905.

MATERIALS USED.					VALUE OF PRODUCTS.						
Total cost.	Paper for newspapers and periodicals.		Paper for book and job printing (cost).	All other materials (cost).	Aggregate.	Newspapers and periodicals.			Book and job printing. ¹	All other products.	
	Pounds.	Cost.				Total.	Advertising.	Subscriptions and sales.			
\$70,354,474 50,214,904 38,955,322 (²)	1,821,629,830 1,078,237,670 552,876,161	\$47,238,775 27,701,638 23,905,384	\$11,725,466 10,122,218 9,984,352	\$11,390,233 12,391,048 5,065,586	\$309,301,854 222,983,569 179,859,750 89,009,074	\$256,816,282 175,789,610 143,586,448 89,009,074	\$145,517,591 95,861,127 71,243,361 39,136,306	\$111,298,691 79,928,483 72,343,087 49,872,768	\$47,317,166 41,200,850 32,812,113 (²)	\$5,168,406 5,993,109 3,461,189 (²)	1 2 3 4
35,004,698 26,691,089 18,773,871	936,850,900 593,407,646 294,226,374	24,305,709 14,944,859 12,265,818	4,691,812 5,168,292 4,114,284	6,007,177 6,577,938 2,393,769	149,850,711 113,269,771 85,577,648 44,383,430	124,781,692 88,792,576 69,496,858 44,383,430	69,266,184 47,974,235 32,568,469 17,299,875	55,515,508 40,818,341 36,928,389 27,083,555	22,756,532 22,418,191 14,794,656	2,312,487 2,059,004 1,286,134	5 6 7 8
7,349,309 5,316,721 4,108,719	177,340,605 117,765,295 51,235,036	4,410,765 2,759,006 2,320,062	1,192,666 878,891 1,238,307	1,745,878 1,678,824 550,350	29,311,428 23,324,547 17,682,677 9,622,007	23,839,744 18,548,042 13,039,163 9,622,007	12,940,866 10,050,641 6,160,640 3,712,775	10,898,878 8,497,401 6,878,523 5,909,232	4,835,844 4,053,125 4,213,736	635,840 723,380 429,778	9 10 11 12
682,269 514,384 367,256	18,589,246 15,067,729 5,779,649	427,437 307,695 221,571	103,493 74,477 92,352	151,339 132,212 53,333	2,644,561 2,190,017 1,719,477 1,236,461	2,267,533 1,876,214 1,405,150 1,236,461	1,252,158 1,044,695 575,122 214,394	1,015,375 831,519 830,028 1,022,067	374,543 269,275 295,844	2,485 44,528 18,483	13 14 15 16
148,256 166,524 190,829	2,543,195 2,804,075 1,911,461	68,493 72,490 81,469	46,701 52,483 87,443	33,072 41,551 21,917	714,455 752,560 805,751 359,859	521,747 507,663 544,786 359,859	280,886 274,818 263,253 179,015	240,861 232,845 281,533 180,844	185,156 211,203 254,160	7,552 33,694 6,805	17 18 19 20
159,665 115,285 120,838	2,006,710 1,302,720 996,377	54,306 39,363 50,817	63,424 46,562 44,035	41,935 29,360 25,986	694,785 546,991 461,796 262,719	462,854 371,110 322,160 262,719	256,934 200,307 141,027 102,619	205,920 170,803 181,133 160,100	191,453 170,692 135,891	40,478 5,189 3,745	21 22 23 24
5,494,948 3,921,665 2,902,340	131,658,560 83,796,234 34,734,860	3,299,438 2,010,392 1,654,770	826,175 593,136 878,783	1,369,335 1,318,137 368,787	21,020,237 16,765,100 12,019,706 6,367,760	16,924,654 13,170,875 8,549,920 6,367,760	8,820,549 6,906,320 3,970,820 2,512,522	8,104,105 6,264,555 4,579,100 3,855,238	3,541,945 3,007,113 3,081,329	553,638 587,112 388,457	25 26 27 28
296,958 166,091 187,758	9,754,192 5,359,396 3,135,927	228,511 113,629 116,855	21,255 15,731 45,132	47,192 36,731 25,771	1,470,303 940,806 900,283 455,726	1,360,505 866,401 727,040 455,726	945,926 555,503 443,901 244,155	414,579 310,898 283,139 211,571	101,158 72,155 171,223	8,640 2,250 2,020	29 30 31 32
567,213 432,772 339,698	12,788,702 9,435,141 4,676,762	332,590 215,437 194,580	131,618 96,502 90,562	103,005 120,833 54,556	2,767,087 2,129,073 1,775,664 939,482	2,302,451 1,755,779 1,490,107 939,482	1,384,413 1,068,998 766,517 460,070	918,038 686,781 723,590 479,412	441,589 322,687 275,289	23,047 50,607 10,268	33 34 35 36
27,655,389 21,374,368 14,665,152	759,510,295 475,642,351 242,991,338	19,894,944 12,185,853 9,945,756	3,499,146 4,289,401 2,875,977	4,261,299 4,899,114 1,843,419	120,539,283 89,945,224 67,894,971 34,761,423	100,941,948 70,244,534 56,457,695 34,761,423	56,325,318 37,923,594 26,407,829 13,587,100	44,616,630 32,320,940 30,049,866 21,174,323	17,920,688 18,365,066 10,580,920	1,676,647 1,335,624 856,356	37 38 39 40
18,405,984 14,511,890 9,650,150	511,518,475 323,048,751 165,413,361	13,351,511 8,289,720 6,841,425	2,197,935 2,820,273 1,647,025	2,856,538 3,401,897 1,161,700	85,756,740 62,965,076 44,393,071 24,266,911	71,634,706 49,216,268 37,842,822 24,266,911	38,795,933 25,369,048 17,861,315 8,674,173	32,838,773 23,847,220 19,981,507 15,592,738	12,899,619 12,883,232 6,156,922	1,222,415 865,576 393,327	41 42 43 44
951,200 892,690 566,188	19,454,807 12,754,777 6,447,571	537,750 372,227 276,661	262,764 347,325 220,407	150,686 173,138 69,120	4,488,372 3,731,068 2,965,362 1,175,015	3,438,585 2,663,899 2,234,291 1,175,015	2,305,643 1,813,518 1,201,280 694,157	1,132,942 850,381 1,033,011 480,858	1,023,189 1,025,632 695,463	26,598 41,537 35,608	45 46 47 48
8,298,205 5,969,788 4,448,814	228,537,013 139,838,823 71,130,406	6,005,683 3,523,906 2,827,670	1,038,447 1,121,803 1,008,545	1,254,075 1,324,079 612,599	30,294,171 23,249,080 20,536,538 9,319,497	25,868,657 18,364,367 16,380,582 9,319,497	15,223,742 10,741,028 7,345,234 4,218,770	10,644,915 7,623,339 9,035,348 5,100,727	3,997,880 4,456,202 3,728,535	427,634 428,511 427,421	49 50 51 52
2,830,140 2,064,702 1,897,024	72,130,438 42,381,523 25,656,376	1,795,379 1,099,377 1,175,000	627,383 438,130 467,412	407,378 527,195 254,612	14,124,030 10,242,622 8,642,993 5,012,574	11,807,779 8,480,006 7,147,009 5,012,574	7,371,258 4,994,983 3,790,568 2,562,643	4,436,521 3,485,023 3,356,441 2,449,931	2,165,311 1,488,688 1,418,304	150,940 273,928 77,680	53 54 55 56
58,597 56,047 37,503	1,248,544 1,153,223 580,218	34,830 32,529 22,259	14,510 11,614 9,718	9,257 11,904 5,526	245,731 219,184 202,496 156,088	194,377 174,933 169,646 156,088	142,355 116,116 105,316 91,983	52,022 58,817 64,330 64,105	50,700 42,397 29,175	654 1,854 3,675	57 58 59 60
655,556 573,563 431,560	21,125,436 15,541,590 6,477,706	468,723 350,404 292,411	93,776 70,170 85,834	93,057 152,989 53,315	3,219,355 2,618,799 2,004,724 1,567,893	2,748,826 2,263,338 1,739,705 1,567,893	1,995,640 1,490,189 1,039,291 859,847	753,186 773,149 700,414 708,046	456,750 282,333 262,341	13,779 73,128 2,678	61 62 63 64
342,165 288,491 300,794	11,365,500 7,980,461 5,357,486	276,211 186,509 248,043	27,388 40,778 11,973	38,566 61,204 40,778	2,091,158 1,846,535 1,173,567 569,657	1,978,119 1,690,643 1,136,783 569,657	1,258,378 1,069,480 582,918 225,928	719,741 621,163 553,865 343,729	110,027 114,578 35,184	3,012 41,314 1,600	65 66 67 68
322,221 212,821 173,334	7,713,780 3,928,032 1,977,387	204,001 118,679 92,898	74,944 51,586 67,326	43,276 42,556 23,110	1,668,439 1,145,577 1,008,150 698,826	1,404,937 907,025 818,073 698,826	791,173 510,729 424,255 356,204	613,764 396,296 393,818 342,622	235,282 221,880 186,047	28,220 16,672 4,030	69 70 71 72

* Not reported separately.

MANUFACTURES.

TABLE 72.—NEWSPAPERS AND PERIODICALS—COMPARATIVE SUMMARY, BY

	STATE OR TERRITORY.	Census.	Number of establishments.	Number of publications.	Capital.	SALARIED OFFICIALS, CLERKS, ETC.		WAGE-EARNERS AND WAGES.		TYPECASTING AND TYPESETTING MACHINES.		Number of hand compositors.	Miscellaneous expenses.
						Number.	Salaries.	Number.	Wages.	Number of machines.	Number of operators.		
	South Atlantic division—Continued.												
73	West Virginia.....	1905	185	216	\$1,476,374	142	\$110,034	751	\$386,913	59	68	357	\$139,661
74		1900	147	176	1,050,150	92	73,207	707	295,413	29	39	387	75,561
75		1880	103	112	438,110	102	67,144	430	154,908				74,883
76		1880		109				511	99,671				
77	North Carolina.....	1905	203	232	1,002,726	199	134,858	703	289,332	41	50	353	155,902
78		1900	165	200	645,432	145	87,851	653	230,941	21	22	470	73,777
79		1890	120	125	449,877	80	53,728	487	182,862				89,455
80		1880		142				502	119,809				
81	South Carolina.....	1905	127	143	685,510	184	135,443	471	206,474	29	42	277	74,961
82		1900	98	117	434,255	56	42,631	413	156,924	16		282	40,367
83		1890	76	84	438,704	76	55,357	373	182,028				83,419
84		1880		81				393	110,081				
85	Georgia.....	1905	278	304	2,739,056	397	341,006	1,129	580,528	78	93	511	480,633
86		1900	233	265	1,852,813	196	177,325	1,050	450,878	39	69	460	243,417
87		1890	204	230	1,286,729	251	150,501	1,164	579,223				300,163
88		1880		200				1,084	331,327				
89	Florida.....	1905	125	149	1,196,138	146	148,405	389	200,975	31	47	205	121,643
90		1900	86	97	400,221	55	49,096	305	134,366	10	22	175	31,775
91		1890	83	97	405,055	86	69,446	429	190,667				73,332
92		1880		45				182	43,253				
93	North Central division....	1905	8,514	10,004	78,652,857	16,152	14,306,254	36,971	20,439,420	2,247	2,970	17,223	20,238,741
94		1900	7,520	8,507	59,842,377	9,516	8,045,761	37,230	17,314,219	1,289	1,605	20,577	10,761,702
95		1890	5,956	7,040	43,342,271	8,287	6,851,612	35,072	18,007,184				10,191,541
96		1880		4,987				28,597	9,525,935				
97	Ohio.....	1905	944	1,229	14,030,738	2,857	2,460,209	6,197	3,507,148	461	570	2,588	3,183,466
98		1900	837	1,039	11,327,865	1,456	1,277,427	6,360	3,119,566	281	353	3,422	1,733,266
99		1890	724	932	7,738,089	1,301	1,026,974	5,991	3,036,590				1,681,680
100		1880		774				5,313	1,761,038				
101	Indiana.....	1905	669	839	6,017,198	1,238	959,519	3,300	1,647,987	228	299	1,703	1,484,847
102		1900	633	841	4,792,139	665	615,036	4,044	1,784,059	115	160	1,933	577,187
103		1890	505	620	2,506,675	623	488,436	2,628	1,143,383				540,595
104		1880		467				2,676	745,850				
105	Illinois.....	1905	1,390	1,715	20,337,296	4,961	4,664,295	7,205	4,789,288	482	577	2,852	7,029,994
106		1900	1,259	1,548	12,259,569	2,894	2,420,322	7,478	3,704,341	267	353	3,707	3,668,045
107		1890	996	1,241	9,714,024	1,827	1,733,818	7,675	4,697,261				3,282,077
108		1880		1,017				6,583	2,736,717				
109	Michigan.....	1905	663	775	4,725,303	1,196	1,000,695	3,148	1,581,891	182	273	1,390	1,063,610
110		1900	591	698	4,114,760	836	685,533	2,916	1,302,493	97	195	1,680	591,407
111		1890	506	589	3,436,287	604	444,298	3,064	1,380,446				701,001
112		1880		464				2,439	729,673				
113	Wisconsin.....	1905	595	702	5,043,464	827	688,764	2,726	1,366,340	148	196	1,294	980,848
114		1900	495	595	4,390,988	411	349,073	2,679	1,174,242	61	126	1,509	462,784
115		1890	379	456	2,645,930	510	369,639	2,218	916,085				574,866
116		1880		340				1,980	531,903				
117	Minnesota.....	1905	714	788	6,030,434	1,241	1,067,252	2,570	1,509,321	167	254	1,316	1,537,118
118		1900	560	622	6,382,125	933	753,386	2,714	1,304,229	113	200	1,502	1,219,343
119		1890	341	392	3,693,259	487	477,353	2,143	1,230,284				891,956
120		1880		223				1,178	390,161				
121	Iowa.....	1905	961	1,067	5,922,515	883	735,517	3,358	1,567,295	178	249	1,834	880,629
122		1900	910	1,045	4,703,049	523	398,905	3,393	1,311,179	94	137	2,062	444,690
123		1890	643	703	3,501,710	722	541,295	2,854	1,203,185				547,460
124		1880		569				2,637	647,407				
125	Missouri.....	1905	889	1,009	8,867,886	1,953	1,863,553	4,117	2,334,985	221	291	1,843	2,759,995
126		1900	814	940	6,507,800	1,294	1,130,265	3,758	2,056,148	168	261	1,988	1,385,340
127		1890	596	707	4,578,490	953	905,175	4,338	2,502,271				1,043,820
128		1880		530				3,215	1,284,831				
129	North Dakota ²	1905	219	233	972,375	60	52,786	452	270,074	23	34	281	104,811
130		1900	131	139	553,052	45	38,195	326	143,096	11	18	225	50,920
131		1890	78	87	491,274	64	51,325	273	152,027				59,106
132	South Dakota ²	1905	272	297	1,218,472	91	71,782	537	276,721	17	23	420	135,359
133		1900	198	218	637,839	43	30,376	422	164,456	7		293	55,504
134		1890	149	174	579,169	137	92,400	441	209,145				88,758
135	Dakota.....	1880		67				315	112,185				
136	Nebraska.....	1905	559	628	2,674,061	499	498,048	1,420	730,919	67	113	718	683,731
137		1900	492	538	2,252,555	277	242,814	1,334	626,597	51	63	953	377,666
138		1890	412	446	2,143,488	463	348,144	1,455	777,219				432,539
139		1880		189				762	250,732				
140	Kansas.....	1905	639	722	2,783,115	346	243,834	1,941	857,451	73	101	984	394,333
141		1900	595	684	1,920,636	169	107,369	1,766	623,783	24	39	1,303	195,520
142		1890	627	693	2,313,876	596	372,755	1,992	759,288				348,083
143		1880		347				1,499	335,438				

¹Does not include sheet music and books of music, which in this table are included in "all other products."

STATES, TERRITORIES, AND GEOGRAPHIC DIVISIONS: 1880 TO 1905—Continued.

MATERIALS USED.					VALUE OF PRODUCTS.						
Total cost.	Paper for newspapers and periodicals.		Paper for book and job printing (cost).	All other materials (cost).	Aggregate.	Newspapers and periodicals.			Book and job printing. ¹	All other products.	
	Pounds.	Cost.				Total.	Advertising.	Subscriptions and sales.			
\$281,222 187,513 114,765	5,066,484 2,116,933 1,080,543	\$137,624 71,451 51,088	\$102,987 74,836 48,408	\$40,611 41,206 15,269	\$1,262,490 907,156 537,362 301,411	\$909,230 576,493 389,257 301,411	\$484,905 282,845 188,351 169,280	\$424,325 293,648 200,906 132,131	\$325,940 288,458 138,355	\$27,320 42,205 9,750	73 74 75 76
263,807 150,944 110,750	4,555,661 1,114,574 1,111,101	135,042 68,648 53,174	91,839 54,731 40,931	36,926 33,565 16,625	1,262,023 827,425 595,635 344,132	981,635 610,418 440,710 344,132	499,000 290,566 211,733 178,324	482,635 319,852 228,977 165,808	271,922 179,106 146,952	8,466 37,901 7,973	77 78 79 80
145,810 97,776 74,755	2,003,067 1,497,904 1,007,108	58,093 45,241 47,309	58,025 29,113 16,720	29,092 23,422 10,726	844,401 510,529 518,927 309,238	620,662 416,594 445,661 309,238	333,154 198,422 212,081 145,907	287,508 218,172 233,550 165,331	213,412 88,792 54,082	10,327 5,143 19,184	81 82 83 84
566,718 370,920 537,271	16,235,892 6,927,078 7,028,445	401,180 183,646 518,915	85,471 71,254 143,764	80,067 116,040 74,592	2,657,890 1,687,049 2,078,024 948,629	2,330,185 1,441,968 1,633,286 948,629	1,448,299 808,284 838,034 468,511	881,886 633,184 795,252 480,118	282,132 190,070 420,373	45,573 55,011 24,365	85 86 87 88
194,044 120,627 110,292	2,916,074 1,321,743 1,036,382	79,675 42,270 48,903	78,443 34,048 46,718	55,926 44,309 14,671	872,543 480,368 524,108 116,700	639,808 398,594 373,888 116,700	418,354 228,352 188,589 66,659	221,454 170,242 185,299 50,041	219,146 81,074 145,795	13,589 700 4,425	89 90 91 92
23,717,011 16,155,055 13,537,358	617,469,773 344,442,478 176,254,481	15,621,270 8,732,267 7,724,801	4,503,339 3,359,778 4,029,529	3,592,402 4,033,010 1,783,028	101,183,375 73,013,157 61,693,791 27,626,698	83,833,602 57,049,471 47,596,252 27,626,698	47,055,208 30,767,290 24,065,572 12,952,457	36,778,394 26,282,181 23,530,680 14,674,241	15,312,891 13,164,201 12,476,998	2,036,882 2,769,485 1,620,541	93 94 95 96
3,839,218 2,883,006 2,404,807	105,176,790 65,270,718 29,823,811	2,585,930 1,622,561 1,281,068	646,492 556,813 813,539	606,796 703,632 310,200	16,408,377 12,189,640 10,928,510 6,109,448	13,840,238 9,643,982 8,360,115 6,109,448	7,585,208 4,863,620 3,850,306 2,460,642	6,255,030 4,780,362 4,569,809 3,648,806	2,251,007 2,192,767 2,345,084	317,132 352,891 223,311	97 98 99 100
1,564,820 1,442,214 774,429	36,745,759 20,280,431 8,619,064	903,358 539,351 405,424	393,383 369,166 279,870	268,079 533,697 89,135	7,250,722 6,093,191 3,589,513 2,036,113	5,662,457 3,912,514 2,784,087 2,036,113	2,918,504 2,070,544 1,413,047 1,057,688	2,743,953 1,841,970 1,371,040 978,425	1,359,977 1,455,005 760,457	228,288 725,672 44,969	101 102 103 104
6,910,646 4,138,134 4,000,623	206,781,367 104,340,860 60,907,389	5,212,638 2,606,458 2,627,842	832,084 656,691 925,994	865,924 874,985 446,787	28,644,981 19,404,955 17,348,845 7,264,585	25,170,464 16,386,952 13,525,673 7,264,585	13,780,752 9,029,291 7,072,055 3,179,954	11,889,712 7,357,661 6,453,618 4,084,631	3,169,970 2,622,275 3,328,026	304,547 395,728 495,146	105 106 107 108
1,664,372 1,023,853 915,521	38,868,968 20,076,208 11,680,577	946,296 503,464 481,459	366,043 277,661 316,240	352,033 242,728 117,822	6,930,000 5,119,740 4,350,948 2,057,438	5,543,790 3,819,560 3,274,039 2,057,438	3,264,306 2,137,461 1,711,309 1,002,092	2,279,484 1,682,099 1,562,780 1,055,346	1,181,899 975,017 942,902	204,311 325,163 133,957	109 110 111 112
1,378,268 902,588 734,777	26,585,794 13,574,896 7,574,249	701,890 378,325 348,906	420,797 268,868 246,264	255,581 268,868 139,607	5,561,303 4,103,415 3,256,897 1,589,725	4,024,435 2,900,231 2,354,825 1,589,725	2,128,727 1,414,475 1,485,756 1,015,423 754,920	1,895,708 1,485,756 1,339,402 834,805	1,374,114 1,077,956 773,114	162,754 125,228 128,958	113 114 115 116
1,673,516 1,073,934 771,151	40,847,312 22,808,615 10,193,158	1,029,620 544,765 444,933	384,997 259,108 209,426	258,899 270,061 116,752	7,699,229 5,790,148 4,157,026 947,903	6,138,869 3,981,874 3,153,605 947,903	3,781,029 2,295,482 1,639,136 524,540	2,357,840 1,511,923 1,514,469 423,363	1,305,154 1,511,923 767,513	255,206 296,351 235,908	117 118 119 120
1,422,002 1,082,549 863,764	24,793,560 17,438,531 7,809,310	709,613 531,443 385,858	444,019 291,749 358,239	268,370 257,357 119,667	6,658,759 4,935,453 3,818,623 2,083,170	4,942,002 3,777,690 2,670,693 2,088,170	2,704,186 1,939,852 1,371,817 1,150,806	2,237,816 1,837,833 1,298,876 937,364	1,464,886 1,007,540 1,039,211	251,871 150,223 108,719	121 122 123 124
3,294,372 2,204,785 1,708,128	107,667,323 62,657,689 27,462,453	2,614,616 1,404,079 1,137,348	293,171 277,024 357,858	386,585 523,682 212,922	13,151,163 9,254,097 7,920,887 3,578,921	11,930,393 8,144,216 6,826,120 3,578,921	7,215,340 4,615,545 3,465,011 1,710,241	4,715,053 3,528,671 3,360,419 1,868,680	1,048,855 939,318 985,182	171,915 170,543 109,585	125 126 127 128
185,837 119,002 112,769	1,843,210 1,291,271 510,604	68,615 34,353 28,649	79,054 34,769 65,274	38,168 40,890 18,846	952,233 587,889 503,782	647,675 420,195 307,392	421,625 259,041 179,216	226,050 161,154 128,176	270,522 138,510 191,424	34,036 29,184 4,966	129 130 131
201,826 127,066 124,528	1,959,094 1,188,144 813,714	75,825 48,195 49,162	84,475 34,961 56,234	41,526 43,910 19,132	1,105,349 633,125 627,828	752,208 475,668 450,415	421,119 245,737 249,433	331,089 229,931 200,982	323,765 136,212 165,541	29,376 21,245 11,872	132 133 134
906,210 624,472 569,920	15,271,050 8,897,345 5,683,456	430,563 284,841 263,412	334,478 210,621 197,829	141,169 129,010 108,679	2,371,765 2,553,051 2,676,183 712,544	2,803,210 1,887,933 2,007,990 712,544	1,579,277 1,002,462 1,091,110 391,825	1,223,933 916,880 320,719	869,355 543,179 587,114	29,200 121,939 81,079	136 137 138 139
675,924 533,452 556,941	10,924,548 6,611,770 5,276,496	342,306 225,432 270,700	224,346 165,820 202,762	109,272 142,200 83,479	3,119,494 2,348,453 2,514,749 1,006,800	2,377,861 1,698,656 1,881,248 1,006,800	1,255,135 893,780 1,007,019 591,723	1,122,726 804,876 874,229 415,077	693,337 564,399 591,430	48,246 85,298 42,071	140 141 142 143

¹ See Dakota for 1880.

MANUFACTURES.

TABLE 72.—NEWSPAPERS AND PERIODICALS—COMPARATIVE SUMMARY, BY

STATE OR TERRITORY.	Census.	Number of establishments.	Number of publications.	Capital.	SALARIED OFFICIALS, CLERKS, ETC.		WAGE-EARNERS AND WAGES.		TYPECASTING AND TYPESETTING MACHINES.		Number of hand compositors.	Miscellaneous expenses.
					Number.	Salaries.	Number.	Wages.	Number of machines.	Number of operators.		
144 South Central division	1905	2,462	2,773	\$16,414,350	2,549	\$2,310,920	8,265	\$4,538,870	507	664	4,339	\$3,221,352
145	1900	1,947	2,178	11,097,256	1,373	1,240,863	6,907	3,235,861	192	394	4,376	1,405,404
146	1890	1,271	1,452	8,126,597	1,416	1,205,807	6,434	3,503,581				1,781,754
147	1880		1,158				5,950	2,062,434				
148 Kentucky	1905	292	327	3,147,027	460	443,368	1,218	644,058	80	123	639	575,732
149	1900	248	282	2,683,855	367	325,851	1,154	521,739	66	88	754	325,093
150	1890	184	218	2,397,213	270	266,906	1,530	839,517				395,065
151	1880		205				1,356	272,136				
152 Tennessee	1905	260	325	3,437,575	529	514,926	1,361	704,855	94	113	560	677,131
153	1900	217	251	2,622,242	403	329,140	951	456,418	59	75	696	300,890
154	1890	178	219	1,708,359	256	210,191	1,101	617,340				291,840
155	1880		193				901	265,456				
156 Alabama	1905	184	203	1,080,626	240	213,946	542	278,698	48	61	331	227,167
157	1900	156	175	621,852	80	79,809	543	241,525	32	38	306	84,881
158	1890	121	136	666,964	117	104,363	530	267,404				135,654
159	1880		125				480	110,083				
160 Mississippi	1905	190	203	606,425	61	45,635	476	213,210	20	26	280	70,920
161	1900	165	178	405,042	28	22,965	440	164,435	8	10	323	31,372
162	1890	114	119	297,757	87	54,515	297	103,523				45,505
163	1880		123				468	109,036				
164 Louisiana	1905	171	189	1,366,180	404	355,870	630	470,906	72	86	289	401,581
165	1900	134	160	1,132,148	127	129,937	873	532,895	10	72	370	161,383
166	1890	116	129	815,083	169	176,389	768	510,989				325,820
167	1880		112				786	411,616				
168 Arkansas	1905	259	284	1,050,806	91	78,594	748	345,090	28	33	414	141,099
169	1900	217	230	645,882	59	44,905	600	215,410	1	8	408	79,261
170	1890	144	164	500,349	112	85,322	512	237,420				122,419
171	1880		117				488	119,048				
172 Indian Territory	1905	153	167	455,992	61	47,353	344	170,973	8	12	233	60,302
173	1900	58	64	115,003	5	1,900	138	48,389			107	10,467
174	1890	8	9	23,790	1	300	22	9,528				3,245
175	1880		3				14	3,000				
176 Oklahoma ¹	1905	244	278	1,113,933	107	81,118	724	303,357	19	27	439	258,265
177	1900	98	110	389,158	41	30,446	379	139,021	1	18	186	20,732
178	1890	15	21	46,145	9	4,340	74	27,791				17,736
179 Texas	1905	709	797	4,155,786	596	530,110	2,222	1,847,723	138	183	1,154	809,155
180	1900	654	722	2,479,073	263	275,910	1,829	916,029	15	90	1,226	391,325
181	1890	391	437	1,670,937	395	303,481	1,600	890,069				444,470
182	1880		280				1,457	772,059				
183 Western division	1905	1,893	2,164	15,126,764	3,558	3,617,893	7,907	6,337,839	683	964	3,225	4,210,486
184	1900	1,411	1,652	10,562,523	1,659	1,625,247	6,730	4,053,856	340	551	3,630	1,561,214
185	1890	946	1,127	8,875,020	1,318	1,390,513	6,027	4,718,040				2,044,926
186	1880		684				4,146	2,240,528				
187 Montana	1905	83	90	939,786	126	186,970	423	499,409	64	77	175	213,995
188	1900	78	89	715,985	91	134,788	455	310,802	27	44	231	96,453
189	1890	41	52	509,267	52	65,591	255	265,271				69,045
190	1880		18				94	66,700				
191 Idaho	1905	85	92	471,922	43	42,673	249	172,288	22	35	135	71,632
192	1900	66	72	280,804	17	11,600	187	92,819	2	5	138	19,254
193	1890	29	33	144,990	31	23,540	86	56,487				21,011
194	1880		10				32	18,000				
195 Wyoming	1905	44	49	242,186	28	31,308	110	76,820	7	8	79	37,531
196	1900	38	42	143,620	6	5,644	86	47,840				12,806
197	1890	21	25	133,642	26	20,616	67	55,902	6	9	61	24,258
198	1880		11				46	25,900				
199 Colorado	1905	326	367	2,434,577	529	591,914	1,053	795,248	100	141	483	580,167
200	1900	212	248	1,751,437	286	262,974	1,303	770,382	68	90	652	323,599
201	1890	159	186	1,221,866	213	212,902	1,008	851,399				257,337
202	1880		87				617	338,345				
203 New Mexico	1905	53	59	266,792	34	28,490	142	90,605	9	14	76	26,637
204	1900	35	42	163,472	17	18,790	142	75,477	4	6	94	11,947
205	1890	31	34	120,068	33	24,086	107	64,747				33,405
206	1880		18				79	31,292				
207 Arizona	1905	46	56	340,651	39	48,636	155	136,058	13	16	71	37,028
208	1900	32	43	186,573	15	17,727	139	73,640	6	9	68	17,968
209	1890	21	29	100,598	33	26,012	91	57,079				19,100
210	1880		17				107	45,828				
211 Utah	1905	74	85	795,850	203	202,489	350	252,342	30	46	125	245,409
212	1900	62	72	679,281	78	67,769	431	235,174	24	28	157	92,129
213	1890	21	28	537,098	55	61,506	323	217,671				110,133
214	1880		22				168	88,580				

¹ Does not include sheet music and books of music, which in this table are included in "all other products."

STATES, TERRITORIES, AND GEOGRAPHIC DIVISIONS: 1880 TO 1905—Continued.

MATERIALS USED.					VALUE OF PRODUCTS.						
Total cost.	Paper for newspapers and periodicals.		Paper for book and job printing (cost).	All other materials (cost).	Aggregate.	Newspapers and periodicals.			Book and job printing. ¹	All other products.	
	Pounds.	Cost.				Total.	Advertising.	Subscriptions and sales.			
\$3,728,087 2,420,389 2,087,343	76,584,292 41,030,511 23,944,314	\$2,139,284 1,267,565 1,068,788	\$1,018,965 579,303 724,571	\$569,838 573,521 293,984	\$19,098,830 12,166,036 10,722,181 5,634,855	\$15,062,302 9,693,618 8,307,432 5,634,855	\$8,694,904 5,128,293 4,445,185 2,850,475	\$6,367,398 4,565,325 3,862,247 2,784,380	\$3,651,261 1,991,572 2,124,418	\$385,267 481,446 290,331	144 145 146 147
536,007 445,000 481,713	13,613,274 10,190,957 5,780,580	332,132 252,430 222,801	112,744 83,618 174,490	91,131 108,952 84,422	2,871,989 2,240,724 2,552,701 1,468,617	2,455,870 1,818,706 1,831,485 1,468,617	1,375,421 942,010 953,254 671,884	1,080,449 876,696 878,231 796,733	361,886 296,222 570,234	54,233 125,796 150,982	148 149 150 151
707,403 446,540 368,500	16,321,476 8,472,378 5,185,720	450,817 248,048 222,283	147,185 103,138 98,685	109,401 95,354 47,532	3,388,175 2,205,112 1,832,228 784,081	2,609,657 1,715,886 1,479,767 784,081	1,383,063 761,785 737,741 373,450	1,226,594 954,101 742,026 410,631	617,404 332,966 295,708	161,114 156,260 56,753	152 153 154 155
266,732 158,677 159,555	6,276,069 2,548,708 2,007,288	163,203 76,197 95,792	60,156 40,518 38,995	43,373 41,962 24,768	1,407,678 841,036 809,577 423,911	1,224,752 704,767 698,114 423,911	779,416 410,090 865,654 220,665	445,336 294,677 332,460 203,246	177,264 125,484 110,573	5,662 10,785 890	156 157 158 159
155,821 114,325 71,759	1,500,692 1,051,085 493,593	58,137 45,394 29,236	73,927 47,904 33,612	23,757 21,027 8,911	800,226 560,097 384,797 380,893	543,774 395,068 279,025 380,893	297,860 195,133 139,449 211,934	245,914 199,935 139,449 168,959	251,973 156,307 102,322	4,479 8,722 3,450	160 161 162 163
388,110 307,421 288,846	10,422,051 6,652,014 3,906,224	278,045 211,851 166,307	62,773 29,245 90,607	45,292 66,325 31,932	2,066,786 1,300,738 1,547,951 1,130,655	1,830,313 1,300,338 1,281,005 1,130,655	1,039,969 751,304 717,586 617,262	790,344 549,034 563,419 513,393	234,509 126,020 258,976	1,964 10,380 7,970	164 165 166 167
241,284 171,979 181,126	2,634,877 1,589,379 1,033,505	89,474 60,196 62,380	105,298 64,305 97,150	46,512 47,478 21,596	1,185,546 839,787 737,588 340,103	800,646 532,869 461,261 340,103	451,701 268,424 228,885 182,201	348,945 264,445 228,885 157,902	370,721 230,037 217,652	14,179 76,881 58,675	168 169 170 171
116,224 31,872 6,811	1,010,107 239,589 43,766	40,184 9,565 3,166	60,589 13,938 2,750	15,451 8,369 895	588,517 174,069 26,912 6,300	374,774 110,916 18,290 6,300	220,452 60,394 9,360 2,990	154,322 50,522 8,930 3,310	213,098 61,958 8,322	645 1,195 300	172 173 174 175
206,593 113,193 14,398	4,661,710 666,428 98,445	131,341 27,645 5,532	116,444 63,871 6,949	58,808 21,677 1,917	1,348,959 481,663 72,905	769,591 250,681 45,495	471,465 138,537 26,300	298,126 112,144 19,195	492,807 183,506 27,410	86,561 47,476	176 177 178
1,011,913 631,382 614,635	20,144,036 9,619,973 5,345,193	595,951 336,239 261,291	279,849 132,766 181,333	136,113 162,377 72,011	5,440,954 3,387,410 2,757,522 1,100,295	4,452,925 2,864,387 2,212,990 1,100,295	2,675,557 1,600,616 1,263,338 570,089	1,777,368 1,263,771 949,652 530,206	931,599 479,072 533,221	56,430 43,951 11,311	179 180 181 182
5,074,538 2,883,669 2,659,726	118,594,425 56,975,512 32,794,616	3,377,133 1,657,570 1,670,977	883,967 546,715 648,556	813,438 679,384 340,193	25,044,908 14,291,383 13,223,137 6,351,517	21,330,907 11,773,939 11,038,897 6,351,517	13,130,037 6,996,326 6,373,567 3,470,856	8,200,870 4,777,613 4,665,330 2,880,661	3,431,171 2,138,198 1,997,737	282,830 379,246 186,503	183 184 185 186
269,289 173,570 101,519	3,268,634 2,399,865 783,627	118,843 58,271 43,860	88,077 44,475 41,376	62,369 70,824 16,283	1,367,891 911,668 569,226 177,750	1,052,309 705,229 427,744 177,750	608,807 390,598 227,865 84,130	443,502 314,631 199,879 93,620	298,327 179,148 137,702	17,255 27,291 3,780	187 188 189 190
102,173 67,022 28,237	977,444 339,990 141,176	39,220 16,235 9,592	46,971 28,653 13,047	15,982 22,134 5,598	527,976 299,805 160,783 38,000	354,558 199,948 117,040 38,000	207,580 110,010 67,060 19,190	146,978 89,938 49,980 18,810	166,980 91,382 40,589	6,438 8,475 3,154	191 192 193 194
45,383 32,308 29,529	491,948 175,662 172,995	19,577 7,773 10,165	17,927 12,769 13,910	7,879 11,766 5,454	291,581 157,789 191,227 47,300	212,349 108,851 149,242 47,300	115,954 62,150 88,028 32,950	96,395 46,701 61,214 14,350	75,517 48,098 39,385	3,715 840 2,600	195 196 197 198
839,853 507,899 439,558	23,259,045 11,093,302 4,984,842	606,337 309,156 268,517	126,221 96,666 120,337	107,295 102,077 50,704	3,838,570 2,525,438 2,211,057 1,015,110	3,324,556 2,105,892 1,804,280 1,015,110	2,009,344 1,289,888 1,125,534 567,442	1,315,212 816,004 678,746 447,668	415,681 359,786 382,065	98,333 59,760 24,712	199 200 201 202
49,468 33,622 34,577	449,765 177,522 160,834	18,111 7,715 11,086	23,484 15,458 15,550	7,873 10,449 7,941	279,858 197,521 206,681 70,972	180,661 128,839 152,480 70,972	97,784 76,513 78,230 35,883	82,877 52,326 30,812 35,089	98,597 61,504 30,812	600 7,178 23,389	203 204 205 206
70,353 46,393 26,557	690,631 352,451 189,620	31,132 12,951 10,677	21,950 16,616 12,595	17,271 16,826 3,285	391,039 236,975 154,590 95,700	304,000 170,083 114,630 95,700	191,329 110,143 59,680 58,000	112,671 59,940 54,950 37,700	85,839 58,014 39,310	1,200 8,878 650	207 208 209 210
204,245 138,290 113,953	3,294,295 2,150,221 1,206,050	120,698 68,189 67,687	51,387 25,614 33,825	32,160 44,487 12,441	1,133,856 593,562 591,805 177,058	936,097 455,498 483,555 177,058	489,031 234,087 271,770 81,270	447,068 221,411 211,785 95,788	174,011 114,517 94,300	23,748 23,547 13,950	211 212 213 214

¹Reported as Indian Territory in 1880.

TABLE 72.—NEWSPAPERS AND PERIODICALS—COMPARATIVE SUMMARY, BY

STATE OR TERRITORY.	Census.	Number of establishments.	Number of publications.	Capital.	SALARIED OFFICIALS, CLERKS, ETC.		WAGE-EARNERS AND WAGES.		TYPECASTING AND TYPESETTING MACHINES.		Number of hand compositors.	Miscellaneous expenses.
					Number.	Salaries.	Number.	Wages.	Number of machines.	Number of operators.		
Western division—Cont'd.												
Nevada.....	1905	29	31	\$167,637	21	\$22,300	67	\$63,878	5	6	41	\$19,199
	1900	29	35	92,372	3	2,400	68	35,024	3	2	46	6,570
	1890	11	15	73,290	7	7,784	56	50,941				14,323
	1880		37				202	162,338				
Washington.....	1905	272	307	1,847,698	521	423,718	1,189	914,566	87	128	413	558,263
	1900	188	199	796,114	217	175,974	626	315,500	33	51	382	202,906
	1890	125	144	1,035,182	135	138,460	662	545,367				205,376
	1880		29				109	34,975				
Oregon.....	1905	186	213	1,074,313	230	277,932	633	474,018	31	82	321	265,553
	1900	159	188	1,312,263	72	86,931	610	292,579	17	38	368	140,280
	1890	111	126	653,419	127	137,680	573	419,209				172,662
	1880		74				343	128,430				
California.....	1905	695	809	6,545,352	1,784	1,761,463	3,536	2,862,607	315	411	1,306	2,155,072
	1900	512	622	4,440,602	857	840,650	2,683	1,804,619	150	269	1,433	637,302
	1890	376	455	4,345,600	606	666,236	2,799	2,133,967				1,118,276
	1880		361				2,349	1,300,140				

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STATES, TERRITORIES, AND GEOGRAPHIC DIVISIONS: 1880 TO 1905—Continued.

MATERIALS USED.					VALUE OF PRODUCTS.					
Total cost.	Paper for newspapers and periodicals.		Paper for book and job printing (cost).	All other materials (cost).	Aggregate.	Newspapers and periodicals.			Book and job printing. ¹	All other products.
	Pounds.	Cost.				Total.	Advertising.	Subscriptions and sales.		
\$32,908	245,343	\$11,924	\$14,216	\$6,768	\$252,897	\$192,057	\$129,776	\$62,281	\$60,740	\$100
17,669	110,020	5,164	3,885	8,620	111,052	93,702	49,272	44,430	17,200	150
15,227	158,962	7,982	4,425	2,820	106,497	93,209	51,835	41,374	13,288	217
					338,800	338,800	215,139	123,661		218
709,559	15,811,266	450,605	102,075	156,879	3,414,982	2,951,015	1,991,385	959,630	444,178	19,789
206,540	4,100,401	119,428	36,803	50,309	1,321,044	1,178,721	772,517	406,204	131,006	11,317
234,127	2,615,931	125,756	79,046	29,325	1,400,064	1,149,285	759,784	389,501	235,816	14,963
					87,400	87,400	48,840	38,560		222
380,033	7,819,728	250,999	74,760	54,274	1,909,305	1,681,290	1,024,515	656,775	208,173	19,842
240,113	3,506,731	111,804	66,236	62,073	1,078,337	825,455	463,172	362,283	194,106	58,776
209,813	2,150,770	121,573	56,229	32,011	1,130,762	951,827	541,328	407,499	174,698	4,237
					367,189	367,189	177,095	190,094		226
2,371,274	62,286,326	1,709,687	316,899	344,688	11,636,953	10,142,015	6,264,532	3,877,483	1,403,128	91,810
1,420,243	32,566,347	940,884	199,540	279,819	6,858,192	5,801,721	3,437,976	2,363,745	883,437	173,034
1,426,629	20,229,809	994,082	258,216	174,331	6,500,445	5,595,605	3,099,453	2,496,152	809,772	95,068
					3,936,238	3,936,238	2,150,917	1,785,321		230

¹ Does not include sheet music and books of music, which in this table are included in "all other products."

TABLE 73.—NEWSPAPERS AND PERIODICALS (EXCLUSIVE ESTABLISHMENTS)—MATERIALS USED

[Establishments whose value of book and job printing products

	STATE OR TERRITORY.	Number of establishments.	Number of publications.	MATERIALS USED.		
				Total cost.	Paper for newspapers and periodicals.	
					Pounds.	Cost.
1	Continental United States.....	4,788	5,939	\$43,389,256	1,500,011,949	\$37,151,654
2	North Atlantic division.....	1,460	1,922	23,068,491	789,098,925	19,664,937
3	New England.....	376	552	4,581,315	156,378,078	3,808,811
4	Maine.....	32	51	376,267	13,274,919	302,309
5	New Hampshire.....	14	62	37,740	1,241,540	29,565
6	Vermont.....	19	38	30,130	907,388	22,829
7	Massachusetts.....	222	292	3,595,462	122,061,084	3,002,079
8	Rhode Island.....	29	36	253,571	9,286,173	214,253
9	Connecticut.....	60	73	288,145	9,606,974	237,776
10	Southern North Atlantic.....	1,084	1,370	18,487,176	632,720,847	15,856,126
11	New York.....	698	887	12,161,937	424,906,006	10,468,820
12	New Jersey.....	79	87	383,497	12,598,884	335,327
13	Pennsylvania.....	307	396	5,941,742	195,215,957	5,051,979
14	South Atlantic division.....	435	515	1,456,595	52,888,356	1,258,123
15	Delaware.....	7	7	32,468	1,048,700	28,577
16	Maryland.....	47	56	329,332	13,134,611	280,908
17	District of Columbia.....	44	49	300,542	11,130,730	265,128
18	Virginia.....	69	84	195,273	6,933,473	169,717
19	West Virginia.....	34	43	40,892	1,252,510	33,577
20	North Carolina.....	82	95	79,000	2,293,726	67,574
21	South Carolina.....	30	37	34,082	962,070	26,176
22	Georgia.....	94	111	385,742	14,319,589	341,044
23	Florida.....	28	33	59,264	1,812,947	45,422
24	North Central division.....	1,808	2,258	13,989,109	501,342,721	12,107,888
25	Ohio.....	285	380	2,246,979	77,750,096	1,871,648
26	Indiana.....	138	176	715,600	27,264,700	623,237
27	Illinois.....	459	573	5,240,283	187,999,546	4,624,621
28	Michigan.....	132	168	842,886	29,987,385	660,816
29	Wisconsin.....	90	128	400,210	13,796,864	337,474
30	Minnesota.....	132	150	887,338	32,360,027	772,394
31	Iowa.....	120	143	373,190	12,070,266	317,548
32	Missouri.....	234	291	2,729,131	102,787,748	2,442,993
33	North Dakota.....	21	23	16,295	416,014	12,781
34	South Dakota.....	30	34	32,641	813,838	25,079
35	Nebraska.....	93	107	364,828	11,711,978	299,286
36	Kansas.....	74	85	139,728	4,384,259	120,001
37	South Central division.....	502	582	1,745,785	58,290,768	1,495,700
38	Kentucky.....	77	92	322,060	11,420,228	262,340
39	Tennessee.....	79	99	365,657	12,910,570	325,465
40	Alabama.....	56	65	166,698	5,597,868	137,479
41	Mississippi.....	29	34	21,277	507,961	16,814
42	Louisiana.....	47	54	278,511	9,656,941	247,223
43	Arkansas.....	36	37	35,337	977,296	29,536
44	Indian Territory.....	8	8	1,115	19,930	750
45	Oklahoma.....	21	25	29,241	735,714	23,634
46	Texas.....	149	168	525,889	16,464,260	452,459
47	Western division.....	583	662	3,129,276	98,391,179	2,625,006
48	Montana.....	12	16	34,189	759,320	25,691
49	Idaho.....	5	5	682	7,700	399
50	Wyoming.....	4	6	10,233	287,322	9,008
51	Colorado.....	100	111	607,816	21,553,685	536,593
52	New Mexico.....	8	8	425	5,020	328
53	Arizona.....	10	10	6,823	98,700	3,972
54	Utah.....	30	35	96,430	2,291,862	82,801
55	Nevada.....	4	4	1,765	27,758	923
56	Washington.....	83	102	428,167	11,760,149	319,534
57	Oregon.....	51	59	239,883	6,768,740	201,982
58	California.....	276	306	1,702,863	54,830,923	1,443,775

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AND VALUE OF PRODUCTS, BY STATES, TERRITORIES, AND GEOGRAPHIC DIVISIONS: 1905.

is 10 per cent or less of the aggregate value of all products.]

MATERIALS USED—continued.		VALUE OF PRODUCTS.						
Paper for book and job printing (cost).	All other materials, including fuel, mill supplies, rent of power and heat, and freight (cost).	Aggregate.	Newspapers and periodicals.			Book and job printing.	All other products.	
			Total.	Advertising.	Subscriptions and sales.			
\$265,598	\$5,972,004	\$187,371,733	\$184,736,800	\$107,656,782	\$77,080,018	\$974,788	\$1,660,145	1
121,820	3,281,734	96,355,095	94,869,929	54,554,624	40,315,305	501,109	984,057	2
34,217	738,287	19,790,212	19,542,360	10,536,779	9,005,581	80,334	167,518	3
1,443	72,515	1,524,428	1,518,129	853,984	664,145	5,649	550	4
15	8,160	216,251	216,201	102,482	113,719	50		5
350	6,951	198,262	194,403	112,651	81,752	1,286	2,573	6
28,512	564,871	15,009,791	14,803,916	7,642,656	7,161,260	64,349	141,526	7
100	39,218	1,246,169	1,238,791	868,940	369,851	615	6,763	8
3,797	46,572	1,595,311	1,570,920	956,066	614,854	8,385	16,006	9
87,603	2,543,447	76,564,883	75,327,569	44,017,845	31,309,724	420,775	816,539	10
61,471	1,631,646	54,497,414	53,557,988	30,584,624	22,973,364	331,493	607,933	11
4,050	44,120	1,967,105	1,944,464	1,294,996	649,468	16,480	6,161	12
22,082	867,681	20,100,364	19,825,117	12,138,225	7,686,892	72,802	202,445	13
9,080	189,392	7,927,832	7,883,425	5,114,643	2,768,782	27,187	17,220	14
50	3,871	129,830	129,710	99,279	30,431	120		15
461	47,963	1,788,965	1,783,115	1,353,664	429,251	2,643	3,207	16
1,925	33,489	1,903,165	1,895,426	1,200,306	695,120	6,000	1,739	17
1,041	24,515	1,034,187	1,028,638	640,000	388,638	3,364	2,185	18
1,250	6,065	218,696	214,001	115,517	98,484	4,495	200	19
860	10,566	503,721	500,393	251,566	248,827	2,180	1,148	20
1,425	6,481	273,748	269,898	149,929	119,969	2,850	1,000	21
1,921	42,777	1,760,914	1,750,702	1,104,353	646,349	5,189	5,023	22
177	13,665	314,606	311,542	199,829	111,713	346	2,718	23
115,114	1,766,107	58,964,107	58,121,354	33,438,255	24,683,099	349,420	* 493,333	24
20,555	354,776	9,785,205	9,647,474	5,377,325	4,270,149	54,216	83,515	25
10,566	81,797	3,455,407	3,384,990	1,735,245	1,649,745	27,057	43,360	26
33,608	582,054	20,898,000	20,688,720	11,593,484	9,095,236	100,970	108,310	27
5,561	176,509	3,613,976	3,571,860	2,173,133	1,398,727	33,517	8,599	28
10,072	52,664	1,853,120	1,812,308	1,024,498	787,810	16,394	24,418	29
8,230	106,714	4,204,598	4,113,054	2,614,678	1,498,376	37,248	54,296	30
10,992	44,650	1,813,150	1,775,424	948,263	827,161	29,748	7,978	31
10,897	275,241	10,565,857	10,397,616	6,447,001	3,950,615	27,134	141,107	32
303	3,211	103,148	98,184	54,421	43,763	595	4,369	33
800	6,762	200,749	190,054	113,581	76,473	2,235	8,460	34
2,189	63,343	1,741,871	1,718,157	959,694	758,463	16,053	7,661	35
1,341	18,386	729,026	723,513	396,932	326,581	4,253	1,260	36
8,786	241,299	9,698,433	9,547,095	5,690,359	3,856,736	44,305	107,033	37
1,940	57,740	1,864,660	1,801,803	1,046,037	755,766	13,625	49,232	38
216	39,976	1,847,905	1,840,025	1,122,527	717,498	3,674	4,206	39
265	28,954	955,242	951,042	626,867	324,175	724	3,476	40
205	4,258	166,492	166,492	88,191	78,301	545		41
25	31,263	1,498,914	1,497,689	839,206	658,483	1,200	25	42
175	5,626	216,748	216,158	125,337	90,821	490	100	43
76	289	10,224	10,020	7,020	3,000	204		44
1,875	3,732	162,223	158,012	95,954	62,058	4,070	141	45
4,009	60,421	2,975,480	2,905,854	1,739,220	1,166,634	19,773	49,853	46
10,798	493,472	14,426,266	14,314,997	8,858,901	5,456,096	52,767	58,502	47
85	8,413	136,664	135,539	85,230	50,309	100	1,025	48
61	222	8,385	7,908	5,058	2,850	177	300	49
100	1,125	61,509	58,009	23,359	34,650	500	3,000	50
796	70,427	2,485,083	2,468,715	1,484,673	984,042	4,715	11,653	51
	97	14,000	13,500	7,700	5,800		500	52
950	1,901	53,956	50,516	29,966	20,550	2,940	500	53
638	12,991	728,799	701,748	370,537	331,211	21,876	5,175	54
460	382	13,484	12,544	7,698	4,846	940		55
445	108,188	1,976,044	1,965,591	1,373,674	591,917	1,580	8,873	56
890	37,011	1,246,409	1,229,157	767,968	461,189	2,260	14,992	57
6,373	252,715	7,701,933	7,671,770	4,703,038	2,968,732	17,679	12,484	58

MANUFACTURES.

TABLE 74.—NEWSPAPERS AND PERIODICALS (COMBINATION ESTABLISHMENTS)—MATERIALS USED

[Establishments whose value of book and job printing products

	STATE OR TERRITORY.	Number of establishments.	Number of publications.	MATERIALS USED.		
				Total cost.	Paper for newspapers and periodicals.	
					Pounds.	Cost.
1	Continental United States.....	13,245	15,455	\$26,965,218	321,617,881	\$10,087,121
2	North Atlantic division.....	2,342	2,964	11,936,207	147,751,975	4,640,772
3	New England.....	468	609	2,767,994	20,902,527	601,954
4	Maine.....	83	107	306,002	5,314,327	125,128
5	New Hampshire.....	54	62	110,516	1,301,655	38,918
6	Vermont.....	45	62	129,535	1,099,322	31,477
7	Massachusetts.....	198	274	1,899,486	9,597,476	297,359
8	Rhode Island.....	19	21	43,387	468,019	14,258
9	Connecticut.....	69	83	279,068	3,181,728	94,814
10	Southern North Atlantic.....	1,874	2,355	9,168,213	126,789,448	4,038,818
11	New York.....	799	1,010	6,244,047	86,612,469	2,882,691
12	New Jersey.....	246	289	567,703	6,855,923	202,423
13	Pennsylvania.....	829	1,056	2,356,463	33,321,056	953,704
14	South Atlantic division.....	927	1,052	1,373,545	19,242,082	537,256
15	Delaware.....	26	27	26,129	199,844	6,253
16	Maryland.....	113	139	326,224	7,990,825	187,815
17	District of Columbia.....	11	14	41,623	234,770	11,083
18	Virginia.....	127	147	126,948	780,307	34,284
19	West Virginia.....	151	173	240,330	3,813,974	104,047
20	North Carolina.....	121	137	184,807	2,161,935	67,468
21	South Carolina.....	97	106	111,728	1,040,997	31,917
22	Georgia.....	184	193	180,976	1,916,303	60,136
23	Florida.....	97	116	134,780	1,103,127	34,253
24	North Central division.....	6,706	7,746	9,727,902	116,127,054	3,513,382
25	Ohio.....	659	849	1,592,239	27,426,694	714,282
26	Indiana.....	531	663	849,220	9,481,059	280,121
27	Illinois.....	931	1,142	1,670,363	18,781,821	588,017
28	Michigan.....	531	607	821,486	8,881,583	285,480
29	Wisconsin.....	505	574	978,058	12,788,930	364,416
30	Minnesota.....	582	638	786,178	8,487,285	257,226
31	Iowa.....	841	924	1,048,812	12,728,294	392,065
32	Missouri.....	655	718	565,241	4,879,575	171,623
33	North Dakota.....	198	210	169,542	1,427,196	55,834
34	South Dakota.....	242	263	169,185	1,145,256	50,746
35	Nebraska.....	466	521	541,382	3,559,072	131,267
36	Kansas.....	565	637	536,196	6,540,289	222,305
37	South Central division.....	1,960	2,191	1,982,302	18,293,524	643,584
38	Kentucky.....	215	235	213,947	2,193,046	69,792
39	Tennessee.....	181	226	341,746	3,410,906	125,352
40	Alabama.....	128	138	100,034	678,201	25,724
41	Mississippi.....	161	169	134,544	992,731	41,323
42	Louisiana.....	124	135	107,599	765,110	30,822
43	Arkansas.....	223	247	205,947	1,657,581	59,938
44	Indian Territory.....	145	159	115,109	990,177	39,434
45	Oklahoma.....	223	253	277,352	3,925,996	107,707
46	Texas.....	560	629	486,024	3,679,776	143,492
47	Western division.....	1,310	1,502	1,945,262	20,203,246	752,127
48	Montana.....	71	80	235,100	2,509,314	93,152
49	Idaho.....	80	87	101,491	969,744	38,821
50	Wyoming.....	40	43	35,150	204,626	10,509
51	Colorado.....	226	256	232,037	1,705,360	69,744
52	New Mexico.....	45	51	49,043	444,745	17,783
53	Arizona.....	36	46	63,530	591,931	27,160
54	Utah.....	44	50	107,815	1,002,433	37,897
55	Nevada.....	25	27	31,143	217,585	11,001
56	Washington.....	189	205	281,392	4,051,117	131,071
57	Oregon.....	135	154	140,150	1,050,988	49,017
58	California.....	419	503	668,411	7,455,403	265,912

AND VALUE OF PRODUCTS, BY STATES, TERRITORIES, AND GEOGRAPHIC DIVISIONS: 1905.

exceeds 10 per cent of the aggregate value of all products.]

MATERIALS USED—continued.		VALUE OF PRODUCTS.					
Paper for book and job printing (cost).	All other materials, including fuel, mill supplies, rent of power and heat, and freight (cost).	Aggregate.	Newspapers and periodicals.			Book and job printing.	All other products.
			Total.	Advertising.	Subscriptions and sales.		
\$11,459,868	\$5,418,229	\$121,930,121	\$72,079,482	\$37,860,809	\$34,218,673	\$46,471,339	\$3,379,300
4,569,992	2,725,443	53,495,616	29,911,763	14,711,560	15,200,203	22,284,338	1,299,515
1,158,449	1,007,591	9,521,216	4,297,384	2,404,087	1,893,297	4,757,394	466,438
102,050	78,824	1,120,133	749,404	398,174	351,230	368,894	1,835
46,686	24,912	498,204	305,546	178,404	127,142	185,106	7,552
63,074	34,984	496,523	268,451	144,283	124,168	190,167	37,905
797,663	804,464	6,010,446	2,120,738	1,177,893	942,845	3,479,480	410,228
21,155	7,974	224,134	121,714	76,986	44,728	100,543	1,877
127,821	56,433	1,171,776	731,531	428,347	303,184	433,204	7,041
3,411,543	1,717,852	43,974,400	25,614,379	12,307,473	13,306,906	17,526,944	833,077
2,136,464	1,224,892	31,259,326	18,076,718	8,211,309	9,865,409	12,595,117	587,491
258,714	106,566	2,521,267	1,494,121	1,010,647	483,474	1,006,709	20,437
1,016,365	386,394	10,193,807	6,043,540	3,085,517	2,958,023	3,925,118	225,149
618,303	217,986	6,196,198	3,924,354	2,256,615	1,667,739	2,177,324	94,520
14,490	5,386	115,901	64,667	43,076	21,591	50,580	654
93,315	45,094	1,430,390	965,711	641,776	323,935	454,107	10,572
25,463	5,077	187,993	82,693	58,072	24,621	104,027	1,273
73,903	18,761	634,252	376,299	151,173	225,126	235,918	22,035
101,737	34,546	1,043,794	695,229	369,388	325,841	321,445	27,120
90,979	26,360	758,302	481,242	247,434	233,808	269,742	7,318
56,600	23,211	570,653	350,764	183,225	167,539	210,562	9,327
83,550	37,290	896,976	579,483	343,946	235,537	312,143	5,350
78,266	22,261	557,937	328,266	218,525	109,741	218,800	10,871
4,388,225	1,826,295	42,219,268	25,712,248	13,616,953	12,095,295	15,022,127	1,484,893
625,937	252,020	6,623,172	4,192,764	2,207,883	1,984,881	2,228,791	201,617
382,817	186,282	3,795,315	2,277,467	1,183,259	1,094,208	1,336,740	181,108
798,476	283,870	7,746,981	4,481,744	2,187,268	2,294,476	3,069,950	195,287
360,482	175,524	3,316,024	1,971,930	1,091,173	880,757	1,148,382	195,712
410,725	202,917	3,708,183	2,212,127	1,104,229	1,107,898	1,368,120	127,936
376,767	152,185	3,494,631	2,025,815	1,166,351	859,464	1,267,906	200,910
433,027	223,720	4,845,609	3,166,578	1,755,923	1,410,655	1,435,859	243,172
282,274	111,344	2,585,306	1,532,777	768,339	764,438	1,021,721	30,808
78,751	34,957	849,085	549,491	367,204	182,287	269,927	29,667
83,675	34,764	904,600	562,154	307,538	254,616	321,580	20,866
332,289	77,826	1,959,894	1,085,053	619,583	465,470	853,352	21,489
223,005	90,886	2,390,468	1,654,348	858,203	796,145	699,799	36,321
1,010,179	328,539	9,400,397	5,615,207	3,004,545	2,510,662	3,609,146	276,044
110,804	33,351	1,007,329	654,067	329,384	324,683	348,261	5,001
146,969	69,425	1,540,270	769,632	260,536	509,096	615,895	154,743
59,891	14,419	452,436	273,710	152,549	121,161	176,540	2,186
73,722	19,499	633,189	377,282	209,669	167,613	251,453	4,454
62,748	14,029	567,872	332,624	200,763	131,861	233,309	1,939
105,123	40,886	968,798	584,488	326,364	258,124	370,231	14,079
60,513	15,162	364,754	213,432	151,322	151,322	212,894	645
114,569	55,076	578,293	611,579	375,511	236,068	488,737	86,420
275,840	66,692	1,186,736	1,547,071	936,337	610,734	911,826	6,577
873,169	319,966	10,618,642	7,015,910	4,271,136	2,744,774	3,378,404	224,328
87,992	53,956	1,231,227	916,770	523,577	393,193	298,227	16,230
46,910	15,760	519,591	346,650	202,522	144,128	166,803	6,138
17,827	6,754	230,072	154,340	92,595	61,745	75,017	715
125,425	36,868	1,353,487	855,841	524,671	331,170	410,966	86,680
23,484	7,776	265,858	167,161	90,084	77,077	98,597	100
21,000	15,370	337,083	253,484	161,363	92,121	82,899	700
50,749	19,169	405,057	234,349	118,494	115,855	152,135	18,573
13,756	6,386	239,413	179,513	122,078	57,435	59,800	100
101,630	48,691	1,438,938	985,424	617,711	367,713	442,598	10,916
73,870	17,263	662,896	452,133	256,547	195,586	205,913	4,850
310,526	91,973	3,935,020	2,470,245	1,561,494	908,751	1,385,449	79,326

TABLE 75.—NEWSPAPERS AND PERIODICALS—NUMBER OF PUBLICATIONS CLASSIFIED ACCORDING TO PERIOD OF ISSUE AND CHARACTER, BY STATES, TERRITORIES, AND GEOGRAPHIC DIVISIONS: 1880 TO 1905.

STATE OR TERRITORY.	Census.	Total number of publica- tions.	PERIOD OF ISSUE.										CHARACTER.													
			Daily.			Triweekly.	Semiweekly.	Weekly.	Monthly.	Quarterly.	All other classes.	News, politics, and family reading.	Religious.	Agricultural, etc.	Commerce, finance, etc.	Trade journals.	General literature.	Medicine and sur- gery.	Law.	Science and mechan- ics.	Fraternal.	Education and his- tory.	Society, art, music, fashion, etc.	College and school periodicals.	Miscellaneous.	
			Total.	Morning.	Evening.																					
Continental United States	1905	21,394	2,452	637	1,815	58	645	15,046	2,500	353	340	16,578	1,287	360	364	627	328	192	81	83	450	173	155	178	538	
	1900	18,226	2,226	595	1,631	62	637	12,979	1,817	237	268	14,939	952	307	190	520	239	111	62	66	200	120	88	139	293	
	1890	14,901	1,610	559	1,051	34	194	10,814	1,734	225	290	11,469	1,025	263	239	432	291	123	47	83	216	119	152	137	305	
	1880	11,314	971	438	533	73	133	8,633	1,167	116	221	8,863	553	173	188	134	189	114	45	68	149	248	72	(*)	477	
North Atlantic division	1905	4,886	671	178	493	22	124	2,864	964	148	93	3,138	407	60	173	254	189	65	31	48	117	52	99	62	191	
	1900	4,165	644	172	472	16	140	2,568	623	108	66	3,063	320	56	93	195	126	36	15	28	39	34	35	25	100	
	1890	4,266	487	161	326	9	58	2,574	891	124	123	2,659	446	63	124	223	202	54	27	45	102	62	90	46	123	
	1880	3,501	331	129	202	12	49	2,366	580	69	94	2,354	223	60	188	134	189	55	22	40	52	96	44	...	233	
New England.....	1905	1,161	179	44	135	4	23	708	194	32	21	819	85	13	26	32	51	7	3	11	22	15	16	17	44	
	1900	1,025	192	50	142	3	39	588	156	27	20	754	71	16	16	34	52	6	1	14	12	7	13	24		
	1890	1,105	135	37	98	13	690	209	35	23		746	106	24	15	25	64	4	1	12	24	21	16	17	30	
	1880	902	91	33	58	2	16	637	126	11	19	669	48	17	20	36	3	2	8	17	34	11			37	
Maine.....	1905	158	17	6	11	1	5	94	37	1	3	112	3	4	3	23	1	1	1	4	1	1	2	4	3	
	1900	177	15	5	10	---	---	100	45	8	4	128	9	1	4	1	21	1	---	1	3	---	---	---	---	
	1890	146	15	5	10	---	---	88	36	2	4	99	6	5	1	21	1	---	---	1	4	3	3	1		
	1880	123	12	4	8	1	---	90	18	1	1	91	9	4	1	8	---	---	2	2	3	---	---	---	3	
New Hampshire.....	1905	124	14	2	12	1	---	104	4	---	1	119	2	---	---	1	1	---	---	1	---	---	1	---	2	
	1900	88	14	2	12	2	---	67	5	---	---	80	2	---	---	1	1	---	---	---	---	---	---	---	---	
	1890	111	16	3	13	---	2	83	10	---	---	97	5	---	---	1	5	---	---	---	1	---	---	---	---	
	1880	87	10	2	8	---	---	66	7	---	4	74	3	1	---	5	---	---	---	---	1	1	---	---	1	
Vermont.....	1905	100	10	3	7	---	---	82	7	---	1	90	1	1	1	3	3	---	---	3	---	---	---	---	---	
	1900	79	9	2	7	---	---	53	10	1	4	63	3	4	---	1	2	1	---	---	---	---	---	---	---	
	1890	70	5	2	3	---	---	58	7	---	---	61	3	---	---	1	3	1	---	---	1	---	---	---	---	
	1880	82	5	2	3	---	---	72	3	1	1	74	3	2	---	1	1	---	---	---	2	---	---	---	---	
Massachusetts.....	1905	566	89	21	68	1	4	316	117	27	12	341	71	6	13	30	22	3	1	8	9	14	13	7	28	
	1900	486	98	25	73	---	---	273	85	15	8	320	48	6	8	27	27	2	1	5	7	8	7	5	16	
	1890	568	56	12	44	---	---	336	123	31	15	331	77	14	12	18	27	2	1	11	15	13	12	8	27	
	1880	427	39	16	23	1	13	279	80	7	8	281	30	6	19	20	2	2	5	6	15	10			31	
Rhode Island.....	1905	57	13	3	10	---	---	29	10	1	---	40	5	---	2	1	---	---	---	3	---	---	1	3	3	
	1900	40	12	3	9	1	3	21	2	1	---	30	3	1	---	3	1	---	---	---	---	---	---	---	---	
	1890	54	9	3	6	---	---	30	13	1	---	36	4	---	2	2	3	---	---	3	1	---	---	---	---	
	1880	44	8	2	6	---	---	31	3	---	1	39	---	---	---	---	---	---	---	3	2	---	---	---	---	
Connecticut.....	1905	156	36	9	27	1	10	83	19	3	4	117	3	2	7	1	2	3	2	3	2	---	1	3	10	
	1900	155	44	13	31	---	---	74	9	2	4	133	6	2	4	1	2	---	---	4	3	---	---	---	---	
	1890	156	34	12	22	---	---	95	20	1	4	122	11	5	1	3	5	1	---	1	1	2	---	3	---	
	1880	139	17	7	10	---	---	99	15	2	---	110	3	4	---	---	2	1	---	1	5	11	---	---	---	
Southern North Atlantic...	1905	3,725	492	134	358	18	101	2,156	770	116	72	2,319	322	47	147	222	138	58	28	37	95	37	83	45	147	
	1900	3,140	452	122	330	13	101	1,980	467	81	46	2,309	249	40	77	161	74	30	15	22	25	22	28	12	76	
	1890	3,161	352	124	228	9	45	1,884	682	89	100	1,913	340	39	109	198	138	50	26	33	78	41	74	29	93	
	1880	2,599	240	96	144	10	33	1,729	454	58	75	1,685	175	43	168	98	52	20	32	35	62	33			196	
New York.....	1905	1,897	217	65	152	10	53	989	521	53	54	994	108	27	115	173	113	40	14	28	55	30	75	24	101	
	1900	1,477	207	63	144	8	52	872	272	35	31	1,012	79	25	56	111	51	19	9	15	12	16	18	5	49	
	1890	1,627	162	64	98	4	31	927	395	49	59	886	155	23	81	147	98	27	12	24	34	26	22	11	51	
	1880	1,411	115	46	69	5	24	892	282	40	53	816	97	29	125	77	38	6	28	16	35	28			116	
New Jersey.....	1905	376	55	13	42	---	---	275	37	3	2	315	11	2	4	3	6	---	1	4	12	1	2	10	---	
	1900	298	49	7	42	---	---	225	17	4	1	274	6	1	1	5	1	---	---	1	2	1	1	1	5	
	1890	263	47	15	32	2	1	186	21	3	3	223	10	1	---	1	5	---	2	1	4	2	3	3	---	
	1880	215	27	8	19	1	6	163	13	2	3	194	3	1	2	---	3	1	1	1	4	4	---	---	---	
Pennsylvania.....	1905	1,452	220	56	164	5	44	892	212	60	16	1,010	203	18	28	46	19	18	13	5	28	6	6	16	36	
	1900	1,365	196	52	144	5	47	883	178	42	14	1,023	164	14	20	45	22	11	6	7	12	4	0	6	22	
	1890	1,271	143	45	98	3	13	771	266	37	38	804	175	15	28	50	35	23	12	8	35	13	19	15	39	
	1880	973	98	42	56	4	3	674	159	16	19	675	75	13	41	---	18	13	13	3	15	23	5	---	79	
South Atlantic division.....	1905	1,567	183	71	112	3	64	1,115	151	23	28	1,243	115	29	14	37	11	13	5	6	29	17	0	11	38	
	1900	1,324	159	64	95	5	54	952	118	11	25	1,104	101	22	8	18	10	8	5	0	6	3	1	14	15	
	1890	1,016	107	56	51	4	13	797	70	10	15	847	63	18	---	12	5	10	4	2	7	6	7	14	12	
	1880	984	83	56	27	15	17	759	88	7	15	788	54	21	13	---	13	9	5	3	16	26	3	---	33	
Delaware.....	1905	34	4	1	3	---	---	25	3	---	---	29	1	1	1	---	---	---	---	1	---					

TABLE 75.—NEWSPAPERS AND PERIODICALS—NUMBER OF PUBLICATIONS CLASSIFIED ACCORDING TO PERIOD OF ISSUE AND CHARACTER, BY STATES, TERRITORIES, AND GEOGRAPHIC DIVISIONS: 1880 TO 1905—Continued.

STATE OR TERRITORY.	Census.	Total number of publica- tions.	PERIOD OF ISSUE.								CHARACTER.														
			Daily.			Triweekly.	Semiweekly.	Weekly.	Monthly.	Quarterly.	All other classes.	News, politics, and family reading.	Religious.	Agricultural, etc.	Commerce, finance, etc.	Trade journals.	General literature.	Medicine and sur- gery.	Law.	Science and mechan- ics.	Fraternal.	Education and his- tory.	Society, art, music, fashion, etc.	College and school periodicals.	Miscellaneous.
			Total.	Morning.	Evening.																				
South Atlantic division—Con.																									
West Virginia	1905	216	33	11	22	4	4	166	9	4	198	7	1	1	1	1	1	1	3	1	1	1	1	2	
	1900	176	19	6	13	4	4	141	11	1	165	5	3	1	1	1	1	2	2	2	2	2	2	2	
	1890	112	9	4	5	1	1	95	5	2	101	2	1	3	1	1	1	3	3	3	3	3	3	3	
	1880	109	2	2	1	2	2	96	6	1	100	3	1	1	1	1	1	1	1	1	2	1	1	2	
North Carolina	1905	232	30	10	20	21	157	15	3	6	188	19	4	11	2	1	3	1	3	1	1	2	2		
	1900	200	26	8	18	15	142	10	1	6	170	22	4	2	1	1	1	3	3	3	3	3	3		
	1890	135	20	9	11	3	102	5	3	2	114	12	3	1	1	1	1	2	1	1	1	1	2		
	1880	142	13	7	6	2	113	7	4	4	118	12	4	2	2	1	1	2	2	2	1	1	2		
South Carolina	1905	143	14	4	10	16	104	6	1	2	125	12	3	1	1	1	1	1	1	1	1	1	1		
	1900	117	7	3	4	1	83	10	1	1	100	9	3	1	1	1	1	1	1	1	1	1	1		
	1890	84	6	4	2	1	73	3	1	1	76	7	1	1	1	1	1	1	1	1	1	1	1		
	1880	81	4	3	1	3	69	3	1	1	68	10	1	1	1	1	1	2	2	1	1	1	1		
Georgia	1905	304	26	11	15	2	233	29	5	5	251	13	7	6	11	1	2	1	4	4	1	1	6		
	1900	265	27	15	12	1	205	17	1	6	236	10	2	1	5	2	4	1	1	1	1	1	3		
	1890	230	19	11	8	1	177	29	1	3	186	13	2	2	3	2	5	2	1	1	5	2	5		
	1880	200	16	11	5	4	163	11	3	3	177	7	4	1	2	3	1	2	1	1	1	1	5		
Florida	1905	149	20	8	12	3	117	9	1	1	130	8	4	2	2	1	1	1	2	2	1	1	1		
	1900	97	11	4	7	1	76	8	1	1	86	7	2	1	2	1	1	1	1	1	1	1	1		
	1890	97	12	4	8	2	80	1	1	2	83	4	4	1	3	1	1	1	1	1	1	1	1		
	1880	45	3	3	1	2	40	1	1	1	41	2	2	1	1	1	1	1	1	1	1	1	1		
North Central division	1905	10,004	1,024	205	819	26	7,383	979	132	147	8,147	508	162	99	256	100	80	34	20	188	79	34	72	225	
	1900	8,907	964	197	767	29	6,589	795	90	127	7,539	350	146	57	245	81	50	29	23	99	60	43	66	119	
	1890	7,040	690	198	492	14	5,437	619	80	119	5,781	396	127	77	149	67	45	14	29	87	41	49	59	119	
	1880	4,987	351	141	210	33	4,064	383	35	86	4,166	189	65	121	25	37	13	17	64	97	21	21	172		
Ohio	1905	1,229	190	38	152	7	46	783	143	40	905	149	9	18	33	10	14	6	4	32	7	6	8	28	
	1900	1,039	170	24	146	8	53	692	90	15	883	55	8	10	29	9	5	6	1	7	3	5	9	9	
	1890	932	121	27	94	7	19	635	106	25	712	101	8	8	14	15	9	3	2	16	6	6	11	21	
	1880	774	56	22	34	8	4	584	90	11	576	57	12	24	2	11	4	4	12	19	7	7	46		
Indiana	1905	839	161	28	133	32	562	68	4	12	716	39	15	5	11	7	6	1	16	3	3	5	15		
	1900	841	156	26	130	41	561	64	10	9	735	36	16	3	14	3	4	1	13	3	1	8	9		
	1890	620	92	17	75	2	448	61	6	11	518	27	20	5	13	1	6	1	9	2	2	7	3		
	1880	467	40	12	28	3	390	27	6	6	422	13	7	3	2	2	2	2	6	9	7	3	3		
Illinois	1905	1,715	192	36	156	7	1,091	287	50	36	1,162	123	36	37	108	28	17	8	10	42	35	17	15	77	
	1900	1,548	197	44	153	4	1,000	219	23	33	1,145	85	35	17	101	28	12	8	9	18	17	24	10		
	1890	1,241	121	44	77	2	858	182	29	29	867	102	30	27	72	18	15	5	17	13	7	19	3		
	1880	1,017	74	30	44	6	758	118	21	23	736	49	15	66	9	8	5	5	13	19	7	7	85		
Michigan	1905	775	86	16	70	4	26	570	74	4	654	24	14	4	10	6	8	6	1	16	5	7	20		
	1900	608	70	14	56	5	23	522	65	5	616	23	7	3	18	8	5	1	1	5	4	3	6		
	1890	589	52	12	40	1	5	472	49	1	502	36	8	2	3	6	4	1	9	4	2	6	5		
	1880	464	33	13	20	3	3	397	19	1	413	11	5	3	1	7	2	2	5	9	3	3	6		
Wisconsin	1905	702	65	10	55	37	538	52	5	5	610	19	11	2	13	10	4	1	10	4	4	15			
	1900	595	60	15	45	1	21	463	42	5	530	17	5	1	5	7	2	1	3	7	2	3	12		
	1890	456	47	14	33	3	373	20	3	10	399	10	16	2	3	8	1	1	8	1	2	3	4		
	1880	340	21	9	12	3	2	283	20	11	301	7	4	5	2	2	1	1	7	8	1	3	4		
Minnesota	1905	788	51	16	35	7	634	71	5	20	645	23	22	11	21	10	5	3	2	14	2	4	11		
	1900	622	44	12	32	1	9	493	60	2	516	20	11	5	21	6	4	4	2	12	6	1	5		
	1890	392	30	11	19	1	1	311	42	2	320	19	5	5	6	8	1	2	3	5	3	3	5		
	1880	223	10	4	6	1	205	6	1	1	207	3	3	2	2	2	2	2	2	2	2	2	4		
Iowa	1905	1,067	66	15	51	3	57	864	60	6	952	31	16	4	10	8	2	1	1	12	9	1	9		
	1900	1,045	65	16	49	7	58	831	64	8	943	39	14	2	4	2	1	1	13	5	3	9	9		
	1890	703	46	18	28	2	14	593	39	4	630	26	7	5	1	3	1	1	9	4	2	8	8		
	1880	569	30	12	18	1	3	500	31	1	519	15	4	1	2	2	1	1	7	15	1	4	4		
Missouri	1905	1,009	92	24	68	19	731	133	15	19	774	76	17	13	29	15	22	8	1	15	3	4	5		
	1900	940	92	24	68	1	14	695	101	14	741	45	22	11	36	12	18	7	7	7	5	5	8		
	1890	707	81	27	54	2	7	516	73	9	528	58	15	20	30	5	11	4	4	5	6	7	3		
	1880	530	43	22	21	8	2	415	50	1	425	28	7	17	5	8	3	2	9	11	2	2	13		
North Dakota ¹	1905	233	9	2	7	3	212	6	1	2	223	2	2	1	1	1	1	1	3	2	1	1	1		
	1900	139	9	4	5	2	126	2	1	1	138	1	1	1	1	1	1	1	1	1	1	1	1		
	1890	87	7	3	4	2	74	4	1	1	81	1	1	1	1	1	1	1	1	1	1	1	1		
South Dakota ¹	1905	297	16	4	12	5	263	11	2	3	283	3	1	2	1	1	1	1	6	2	4	2	2		
	1900	218	16	4	12	1	189	9	1	1	203														

TABLE 75.—NEWSPAPERS AND PERIODICALS—NUMBER OF PUBLICATIONS CLASSIFIED ACCORDING TO PERIOD OF ISSUE AND CHARACTER, BY STATES, TERRITORIES, AND GEOGRAPHIC DIVISIONS: 1880 TO 1905—Continued.

STATE OR TERRITORY.	Census.	Total number of publica- tions.	PERIOD OF ISSUE.									CHARACTER.													
			Daily.			Triweekly.	Semiweekly.	Weekly.	Monthly.	Quarterly.	All other classes.	News, politics, and family reading.	Religious.	Agricultural, etc.	Commerce, finance, etc.	Trade journals.	General literature.	Medicine and sur- gery.	Law.	Science and mechan- ics.	Fraternal.	Education and his- tory.	Society, art, music, fashion, etc.	College and school periodicals.	Miscellaneous.
			Total.	Morning.	Evening.																				
South Central division	1905	2,773	269	67	202	2	57	2,198	168	38	41	2,348	175	46	19	31	13	23	5	2	43	15	7	15	31
	1900	2,178	216	67	149	6	67	1,718	129	15	27	1,921	106	33	5	25	7	10	2	13	11	4	22	20	
	1890	1,452	138	57	81	3	17	1,174	89	10	21	1,219	88	28	12	18	7	11	1	12	5	3	16	28	
	1880	1,158	83	44	39	10	14	964	67	2	18	997	62	16	11	11	9	2	1	9	20	1	1	19	
Kentucky	1905	327	34	14	20	2	19	230	34	4	4	248	29	8	4	10	1	4	2	11	1	1	3	6	
	1900	282	27	10	17	1	24	190	32	3	5	221	22	8	10	3	3	1	1	3	1	1	8	5	
	1890	218	25	12	13	1	7	165	13	7	7	181	15	4	2	0	1	1	1	1	1	3	2		
	1880	205	11	7	4	2	7	160	23	2	2	162	13	6	4	3	4	1	1	2	5	1	3	6	
Tennessee	1905	325	17	8	9	3	230	33	31	11	208	75	6	6	6	7	7	1	1	8	4	1	2	2	
	1900	251	16	9	7	6	187	28	10	4	198	32	5	5	1	3	3	1	1	3	2	1	3	1	
	1890	219	18	8	10	2	169	20	6	4	170	26	2	3	3	1	3	1	1	1	1	1	5	2	
	1880	193	12	7	5	2	154	16	2	7	147	14	4	4	5	3	3	1	1	4	9	1	2	7	
Alabama	1905	203	21	8	13	1	171	7	3	3	183	4	4	4	1	1	2	1	1	2	1	2	2	2	
	1900	175	19	8	11	1	143	4	6	6	160	7	2	4	1	1	1	1	1	1	1	1	1	1	
	1890	136	14	8	6	1	108	9	2	2	112	14	4	4	1	1	1	1	2	1	1	1	1	1	
	1880	125	6	3	3	1	109	7	2	2	114	5	2	2	1	1	1	1	1	1	3	1	1	1	
Mississippi	1905	203	14	3	11	4	176	6	8	8	184	11	2	2	2	2	1	1	1	1	1	1	1	1	
	1900	178	13	3	10	1	156	4	4	2	169	5	1	1	1	1	1	1	1	1	1	1	1	1	
	1890	119	6	2	4	1	102	7	3	3	105	7	3	3	1	1	1	1	1	1	2	1	1	1	
	1880	123	5	3	2	5	109	3	3	3	115	4	3	3	1	1	1	1	1	1	1	1	1	1	
Louisiana	1905	189	25	7	18	5	143	10	1	5	160	13	8	2	4	3	1	1	1	3	1	1	1	3	
	1900	160	23	8	15	2	112	15	2	2	134	6	4	1	3	3	1	1	1	1	1	1	3	3	
	1890	129	12	6	6	1	99	13	1	3	87	10	5	6	2	2	2	2	2	2	1	1	3	12	
	1880	112	13	8	5	1	94	2	1	1	96	7	1	1	1	1	1	1	1	1	1	1	3	4	
Arkansas	1905	284	27	3	24	5	232	14	1	5	253	12	1	1	1	1	1	1	1	6	3	1	3	3	
	1900	236	20	4	16	1	199	8	1	3	217	6	1	1	1	1	1	1	1	6	2	1	1	1	
	1890	164	14	4	10	1	142	7	1	1	150	6	1	1	1	1	1	1	1	3	2	2	2	1	
	1880	117	6	2	4	1	104	2	2	4	106	5	2	2	1	1	1	1	1	1	1	2	1	1	
Indian Territory	1905	167	15	1	14	1	148	3	3	2	158	4	1	1	1	1	1	1	1	1	1	1	1	1	
	1900	64	6	1	5	1	56	2	2	2	62	1	1	1	1	1	1	1	1	1	1	1	1	1	
	1890	9	1	1	1	1	8	1	1	1	7	1	1	1	1	1	1	1	1	1	1	1	1	1	
	1880	3	1	1	1	1	3	1	1	1	3	1	1	1	1	1	1	1	1	1	1	1	1	1	
Oklahoma ¹	1905	278	29	5	24	1	239	7	2	2	259	4	6	1	1	1	1	1	1	1	2	1	1	3	
	1900	110	9	2	7	1	96	3	1	1	106	2	1	1	1	1	1	1	1	1	1	1	1	1	
	1890	21	6	3	3	1	14	1	1	1	20	1	1	1	1	1	1	1	1	1	1	1	1	1	
Texas	1905	797	87	18	69	18	629	54	1	8	695	23	15	6	9	8	6	1	1	11	3	4	3	13	
	1900	722	83	22	61	22	579	33	1	4	654	25	12	9	9	1	1	1	1	3	3	2	0	8	
	1890	437	42	13	29	1	367	19	1	1	387	8	9	1	6	3	3	1	1	3	1	2	3	11	
	1880	280	30	14	16	1	231	14	2	2	254	14	2	2	2	2	1	1	1	2	1	1	1	1	
Western division	1905	2,164	305	116	189	5	87	1,486	238	12	31	1,702	82	63	59	49	22	11	6	7	73	10	9	18	53
	1900	1,652	243	95	148	6	63	1,152	152	13	23	1,312	75	50	27	37	15	7	11	5	43	14	5	12	39
	1890	1,127	188	87	101	4	25	832	65	1	12	963	32	27	17	30	10	3	1	8	8	3	2	23	
	1880	684	123	68	55	3	18	480	49	3	8	558	25	11	30	6	4	3	7	8	9	3	2	20	
Montana	1905	96	12	5	7	7	69	5	3	3	85	4	2	2	2	2	2	2	2	2	2	2	2	2	
	1900	89	11	5	6	4	70	3	1	1	79	2	5	5	1	1	1	1	1	1	1	1	1	2	
	1890	52	9	3	6	1	37	3	1	1	45	2	3	3	1	1	1	1	1	1	1	1	1	1	
	1880	18	4	4	1	1	14	1	1	1	17	1	1	1	1	1	1	1	1	1	1	1	1	1	
Idaho	1905	92	6	3	3	1	74	1	1	1	89	1	1	1	1	1	1	1	1	2	1	1	1	1	
	1900	72	5	3	2	1	59	1	1	2	69	1	1	1	1	1	1	1	1	1	1	1	1	1	
	1890	33	3	2	1	1	28	1	1	1	32	1	1	1	1	1	1	1	1	1	1	1	1	1	
	1880	10	1	1	1	1	7	1	1	1	10	1	1	1	1	1	1	1	1	1	1	1	1	1	
Wyoming	1905	49	4	1	3	1	36	3	1	1	46	1	1	1	1	1	1	1	1	1	1	1	1	1	
	1900	42	4	1	3	1	32	3	1	1	40	1	1	1	1	1	1	1	1	1	1	1	1	1	
	1890	25	5	2	3	1	20	1	1	1	24	1	1	1	1	1	1	1	1	1	1	1	1	1	
	1880	11	3	2	1	1	8	1	1	1	11	1	1	1	1	1	1	1	1	1	1	1	1	1	
Colorado	1905	367	42	13	29	1	6	274	38	6	6	293	0	13	16	7	3	1	1	9	2	2	2	8	
	1900	248	42	13	29	1	3	179	19	1	3	200	4	9	3	7	3	1	2	6	2	1	1	10	
	1890	186	23	11	12	1	3	153	6	1	1	175	3	2	1	1	1	1	1	1	1	1	1	1	
	1880	87	19	12	7	1	1	63	4	1	1	78	2	1	1	1	1	1	1	1	1	1	1	1	
New Mexico	1905	59	6	1	5	1	53	1	1	1	52	1	1	1	2	1	1	1	1	1	1	1	1	1	
	1900	42	4	1	3	1	35	1	1	2	36	4	1	1	1	1	1	1	1	1	1	1	1	1	
	1890	34	4	1	3	1	29	1	1	1	33	1	1	1	1	1	1	1	1	1	1				

TABLE 75.—NEWSPAPERS AND PERIODICALS—NUMBER OF PUBLICATIONS CLASSIFIED ACCORDING TO PERIOD OF ISSUE AND CHARACTER, BY STATES, TERRITORIES, AND GEOGRAPHIC DIVISIONS. 1880 TO 1905—Continued.

STATE OR TERRITORY.	Census.	Total number of publica- tions.	PERIOD OF ISSUE.								CHARACTER.														
			Daily.			Triweekly.	Semiweekly.	Weekly.	Monthly.	Quarterly.	All other classes.	News, politics, and family reading.	Religious.	Agricultural, etc.	Commerce, finance, etc.	Trade journals.	General literature.	Medicine and sur- gery.	Law.	Science and mechan- ics.	Fraternal.	Education and his- tory.	Society, art, music, fashion, etc.	College and school periodicals.	Miscellaneous.
			Total.	Morning.	Evening.																				
Western division—Cont'd.																									
Nevada	1905	31	9	3	6	1	3	20	1			31													
	1900	35	9	3	6			21				34									1				
	1890	15	6	3	3			9				15													
	1880	37	14	5	9			22	1			35													
Washington	1905	807	29	10	19		7	226	42	3		244	10	11	8	8	2	1	1		9	1	1	4	8
	1900	199	15	8	7	1	3	154	21	2	3	152	8	5	9	1	2	1			9	1	1	3	4
	1890	144	18	6	12			118	7			128	2	3	4	2									
	1880	29	4	4				23	2			28	1												
Oregon	1905	213	23	9	14		18	152	16		4	177	7	6	5	2	3	1	1		10			1	3
	1900	188	21	9	12		14	124	27		2	137	11	7	3	7	2	1	1		10	3	1	2	3
	1890	126	16	7	9		1	100	8		1	109	6	2	2	1				1	1	1	1	3	
	1880	74	7	4	3			59	6	1	1	60	5	1	2		2	1				2			1
California	1905	809	148	62	85	2	26	487	124	11	11	563	45	25	28	30	14	7	2	6	37	8	7	8	34
	1900	622	117	47	70	1	22	397	71	6	8	469	40	17	12	21	10	4	4	3	13	6	2	2	19
	1890	455	87	42	45	2	11	311	37	1	6	359	15	11	10	22	7	3	1	2	6	3	2		14
	1880	361	58	30	28	2	11	250	32	2		270	12				4	3	3	3	7	6			16

TABLE 76.—NEWSPAPERS AND PERIODICALS—AVERAGE AND AGGREGATE CIRCULATION PER ISSUE, CLASSIFIED

STATE OR TERRITORY.		Census.	AVERAGE CIRCULATION PER ISSUE.							
			All classes.	Daily.	Tri-weekly.	Semi-weekly.	Weekly.	Monthly.	Quarterly.	All other classes.
1	Continental United States.....	1905	6,541	8,597	5,107	4,554	2,441	25,722	33,172	8,466
2		1900	5,865	6,784	3,687	4,447	2,638	20,842	46,698	20,695
3		1890	4,573	5,209	1,473	2,896	2,678	10,746	36,109	11,851
4		1880	2,809	3,673	933	1,992	1,884	6,975	16,931	6,152
5		1870	3,550	4,532	1,450	2,150	2,467	9,085	4,320	12,674
6		1860	3,373	3,820	1,246	2,217	2,390	12,186	3,367	.....
7		1850	2,036	2,986	658	1,726	1,548	7,407	1,362	4,958
8	North Atlantic division.....	1905	15,357	15,921	9,867	5,783	4,693	45,730	34,618	8,268
9		1900	13,966	11,840	9,983	5,996	5,375	43,370	42,872	61,979
10		1890	8,490	8,712	2,394	3,421	4,794	15,055	33,297	15,222
11		1880	5,294	6,124	1,012	3,165	3,402	10,796	19,332	7,389
12		1870	6,716	7,185	1,695	4,183	4,493	14,007	4,752	22,018
13		1860	6,561	5,776	1,945	3,759	4,329	19,967	3,875	.....
14		1850	3,054	4,310	525	1,890	2,176	9,461	1,161	9,587
15	New England.....	1905	14,084	11,242	1,025	4,145	3,122	57,447	14,171	20,525
16		1900	13,328	8,268	1,783	2,424	4,671	54,274	13,898	19,288
17		1890	7,437	5,342	.....	2,320	3,735	17,295	22,536	21,135
18		1880	4,300	4,412	440	2,320	2,562	13,774	2,373	2,374
19		1870	4,560	5,177	575	2,416	3,794	8,606	1,295	4,559
20		1860	4,027	4,519	911	2,694	3,465	8,345	3,575	.....
21		1850	2,437	3,642	507	1,596	2,230	3,407	911	1,269
22	Maine.....	1905	43,893	4,370	450	4,998	2,234	178,988	1,600	425
23		1900	36,351	3,989	.....	3,546	2,208	136,011	881	2,050
24		1890	16,726	2,770	.....	1,350	2,621	54,574	1,000	50,463
25		1880	11,041	1,894	480	.....	1,962	60,953	1,500	400
26		1870	2,626	1,529	350	.....	2,438	5,355	1,500	700
27		1860	1,802	1,018	994	.....	1,837	3,090	.....	.....
28		1850	1,295	778	388	.....	1,433	2,500	.....	.....
29	New Hampshire.....	1905	2,139	3,702	1,700	.....	1,408	16,125	.....	806
30		1900	2,407	3,030	2,625	.....	2,372	1,050	.....	.....
31		1890	2,352	2,369	.....	725	2,431	1,994	.....	.....
32		1880	2,296	907	.....	.....	1,800	5,614	.....	7,400
33		1870	3,410	871	.....	.....	2,049	11,166	.....	25,000
34		1860	985	.....	.....	.....	985	.....	.....	.....
35		1850	1,585	.....	.....	.....	1,669	575	.....	650
36	Vermont.....	1905	1,744	3,585	.....	.....	1,488	2,271	.....	650
37		1900	2,388	2,967	.....	4,200	2,030	3,525	300	2,600
38		1890	2,965	2,140	.....	.....	1,729	13,800	.....	.....
39		1880	2,245	1,050	.....	.....	1,492	17,167	1,100	285
40		1870	1,519	1,063	.....	.....	1,307	12,000	.....	.....
41		1860	1,530	375	.....	.....	1,595	2,000	.....	.....
42		1850	1,313	278	.....	2,200	1,374	1,000	.....	.....
43	Massachusetts.....	1905	14,468	16,393	1,500	9,131	4,671	37,386	16,503	33,000
44		1900	12,755	11,539	.....	4,621	7,569	26,555	24,206	43,669
45		1890	8,208	7,960	.....	3,634	5,363	10,795	25,223	18,611
46		1880	5,122	7,789	400	2,671	4,273	7,870	3,157	1,406
47		1870	6,533	11,030	800	2,593	5,879	9,628	1,267	4,109
48		1860	6,167	9,976	800	2,907	5,370	9,808	3,583	.....
49		1850	3,436	5,938	562	1,809	3,109	3,900	857	1,368
50	Rhode Island.....	1905	4,043	12,564	.....	1,680	1,364	2,064	250	.....
51		1900	4,265	9,904	100	2,251	1,794	2,112	3,000	.....
52		1890	2,757	7,551	.....	425	1,989	1,574	350	.....
53		1880	2,490	5,175	.....	700	1,984	1,013	.....	400
54		1870	2,564	3,875	.....	1,200	2,313	2,275	.....	.....
55		1860	1,911	2,060	.....	2,000	1,894	1,400	.....	.....
56		1850	1,288	1,141	.....	121	1,544	.....	.....	.....
57	Connecticut.....	1905	3,574	6,338	450	2,711	2,608	2,471	2,017	8,075
58		1900	2,952	4,746	.....	1,333	2,101	4,931	900	4,450
59		1890	3,180	3,448	.....	745	1,921	9,264	4,500	1,275
60		1880	1,917	2,968	.....	850	1,737	2,583	700	794
61		1870	2,869	2,233	.....	800	2,498	8,057	1,350	683
62		1860	1,737	1,304	.....	400	1,850	500	3,550	.....
63		1850	1,145	808	600	.....	1,357	500	1,100	1,200
64	Southern North Atlantic.....	1905	15,754	17,624	11,832	6,156	5,209	42,778	40,258	4,694
65		1900	14,174	13,358	11,875	7,375	5,584	39,728	52,530	80,540
66		1890	8,858	10,004	2,394	3,739	5,182	14,368	37,529	13,862
67		1880	5,639	6,773	1,126	3,574	3,711	9,969	22,548	8,659
68		1870	7,473	7,929	1,975	5,508	4,733	15,697	6,160	29,999
69		1860	7,637	6,266	2,850	4,976	4,684	25,197	4,025	.....
70		1850	3,364	4,640	548	2,183	2,151	15,347	1,610	12,082
71	New York.....	1905	21,002	21,640	19,521	3,162	5,537	54,160	17,157	3,324
72		1900	20,458	18,826	18,272	8,863	8,024	56,166	60,761	42,300
73		1890	11,083	13,081	3,638	3,258	6,848	17,697	34,943	12,649
74		1880	7,722	9,059	1,128	4,371	5,265	11,040	19,736	5,840
75		1870	9,055	8,971	1,160	5,205	6,542	17,919	7,112	10,300
76		1860	11,134	6,586	2,700	5,887	7,106	29,638	5,760	.....
77		1850	3,796	4,044	622	2,305	2,448	15,347	2,050	7,889
78	New Jersey.....	1905	2,859	5,417	.....	1,144	1,562	9,085	842	2,100
79		1900	10,098	4,556	.....	950	1,631	1,703	34,125	2,251,500
80		1890	1,884	3,420	650	2,200	1,499	2,143	1,042	1,433
81		1880	1,306	2,116	750	900	1,112	1,811	6,000	517
82		1870	1,684	1,902	.....	.....	1,270	6,686	.....	.....
83		1860	1,800	1,234	.....	1,000	1,879	3,333	.....	.....
84		1850	873	1,170	.....	.....	850	.....	.....	480

¹ Circulation, amounting to 150,000, is given only for "all classes."² Circulation, amounting to 807,750, is given only for "all classes."

ACCORDING TO PERIOD OF ISSUE, BY STATES, TERRITORIES, AND GEOGRAPHIC DIVISIONS: 1850 TO 1905.

AGGREGATE CIRCULATION PER ISSUE.							
All classes.	Daily.	Triweekly.	Semiweekly.	Weekly.	Monthly.	Quarterly.	All other classes.
139,939,229	21,079,130	296,194	2,937,464	36,732,037	64,306,155	11,709,655	2,878,594
106,889,334	15,102,156	228,610	2,832,868	34,242,052	37,869,897	11,067,422	5,546,329
68,147,619	8,387,188	50,067	561,743	28,954,515	18,632,723	8,124,500	3,436,883
¹ 31,779,686	3,566,395	68,086	264,910	16,266,830	8,139,881	1,964,049	1,359,535
20,842,475	2,601,547	155,105	247,197	10,594,643	5,650,843	211,670	1,381,470
² 13,663,409	1,478,435	107,170	175,165	7,581,930	3,411,959	101,000	.....
³ 5,142,177	758,454	75,712	53,511	2,944,629	740,651	25,875	495,845
75,034,744	10,683,213	217,074	717,081	13,441,299	44,083,679	5,123,430	768,968
58,167,439	7,625,061	159,731	839,466	13,802,877	27,019,523	4,630,190	4,090,591
36,216,698	4,242,492	21,550	198,431	12,339,204	13,413,879	4,128,826	1,872,316
18,533,003	2,027,065	12,140	155,071	8,048,784	6,261,478	1,333,899	694,566
13,580,660	1,595,165	16,950	175,684	6,020,991	4,468,400	180,570	1,122,900
9,336,837	947,291	29,178	112,771	4,476,373	2,895,224	93,000	.....
3,619,043	521,538	12,067	52,911	1,923,158	671,734	16,250	373,885
16,351,496	2,012,400	4,100	95,344	2,210,405	11,144,738	453,481	431,028
13,061,873	1,587,435	5,350	94,557	2,746,803	8,466,732	375,246	385,750
8,217,762	721,131	.....	30,155	2,576,922	3,614,681	788,760	486,113
3,878,330	401,501	880	37,127	1,632,034	1,735,578	26,100	45,110
2,393,898	310,595	1,150	43,484	1,297,429	654,040	14,250	72,950
1,707,490	207,891	6,378	43,100	1,042,981	375,540	28,600	.....
964,989	145,664	6,592	22,346	606,512	119,250	8,200	11,425
6,935,104	74,287	450	24,990	209,961	6,622,541	1,600	1,275
6,434,065	59,838	.....	17,728	220,759	6,120,490	7,050	8,200
2,442,046	41,545	.....	1,350	230,642	1,964,659	2,000	201,850
1,214,460	18,940	480	.....	156,940	1,036,200	1,500	400
170,690	10,700	350	.....	114,600	42,840	1,500	700
126,169	8,141	3,978	.....	95,510	18,540	.....	.....
63,439	3,110	1,942	.....	55,887	2,500	.....	.....
265,224	51,834	1,700	.....	146,390	64,500	.....	800
211,819	42,419	5,250	.....	158,900	5,250	.....	.....
261,040	37,900	.....	1,450	201,752	19,938	.....	.....
185,968	9,070	.....	.....	107,998	39,300	.....	29,600
173,919	6,100	.....	.....	75,819	67,000	.....	25,000
19,700	.....	.....	.....	19,700	.....	.....	.....
60,226	.....	.....	.....	58,426	1,150	.....	650
174,445	35,846	.....	.....	122,049	15,900	.....	650
188,646	26,699	.....	8,400	107,597	35,250	300	10,400
207,565	10,700	.....	.....	100,265	96,600	.....	.....
130,192	4,200	.....	.....	73,107	51,500	1,100	285
71,390	3,190	.....	.....	56,200	12,000	.....	.....
47,415	750	.....	.....	44,665	2,000	.....	.....
45,961	655	.....	2,200	41,206	2,000	.....	.....
8,188,769	1,458,967	1,500	36,525	1,475,984	4,374,209	445,581	396,003
6,199,127	1,130,820	.....	32,350	2,066,369	2,257,142	363,096	349,350
4,662,159	445,781	.....	25,440	1,802,125	1,327,740	781,910	279,163
2,012,929	280,399	400	34,727	1,089,515	574,538	22,100	11,250
1,692,124	231,625	800	41,484	899,465	462,150	11,400	45,200
1,368,980	169,600	2,400	40,700	778,680	353,100	21,500	.....
718,221	130,640	2,250	19,904	391,752	113,100	6,000	9,575
230,475	163,326	.....	6,719	39,542	20,638	250	.....
170,594	118,844	100	6,754	37,671	4,225	3,000	.....
148,868	67,959	.....	425	59,666	20,468	350	.....
97,121	41,402	.....	700	51,579	3,040	.....	400
82,050	23,250	.....	1,200	43,950	13,650	.....	.....
49,690	10,300	.....	2,000	35,990	1,400	.....	.....
24,472	5,705	.....	242	18,525	.....	.....	.....
557,479	228,140	450	27,110	216,479	46,950	6,050	32,300
457,622	208,815	.....	29,325	155,507	44,375	1,800	17,800
496,084	117,246	.....	1,490	182,472	185,276	4,500	5,100
237,660	47,490	.....	1,700	152,895	31,000	1,400	3,175
203,725	35,730	.....	800	107,395	56,400	1,350	2,050
95,536	19,100	.....	400	68,436	500	7,100	.....
52,670	5,654	2,400	.....	40,716	500	2,200	1,200
58,683,248	8,670,813	212,974	621,737	11,230,894	32,938,941	4,669,949	337,940
44,505,566	6,037,626	154,381	744,909	11,056,074	18,552,791	4,254,944	3,704,841
27,998,936	3,521,361	21,550	168,276	9,762,282	9,799,198	3,340,066	1,386,203
14,654,673	1,625,564	11,260	117,944	6,416,750	4,525,900	1,307,799	649,456
11,186,762	1,284,570	15,800	132,200	4,723,562	3,814,360	166,320	1,049,950
7,629,347	739,400	22,800	69,671	3,493,392	2,519,684	64,400	.....
2,654,054	375,874	5,475	30,565	1,816,646	552,484	8,050	362,460
39,840,329	4,695,885	195,210	167,587	5,475,689	28,217,126	909,317	179,515
30,216,095	3,896,967	146,175	460,867	6,997,099	15,277,062	2,126,625	1,311,300
18,031,391	2,119,101	14,550	100,998	6,347,827	6,990,400	1,712,200	746,315
9,374,134	996,561	4,510	100,544	4,253,908	2,903,527	828,913	286,171
7,561,497	780,470	5,800	114,500	3,388,497	2,920,810	135,120	216,300
6,034,636	487,340	18,900	58,871	2,600,925	2,045,000	57,600	.....
1,624,756	206,222	4,975	29,965	753,960	552,484	6,150	71,000
1,074,822	297,929	.....	4,575	429,464	336,129	2,525	4,200
3,009,104	223,233	.....	1,900	367,021	28,950	136,500	2,251,500
495,462	160,746	1,300	2,200	278,591	445,000	3,125	4,300
249,478	50,776	750	3,600	164,502	16,300	12,000	1,550
205,500	38,030	.....	.....	120,670	46,800	.....	.....
162,016	18,510	.....	1,000	131,506	10,000	.....	.....
44,521	7,017	.....	.....	36,544	.....	.....	960

³ Circulation, amounting to 47,500, is given only for "all classes."⁴ In 1890 certain publications were reported which were disallowed at subsequent censuses; the revised figures have been used for this report.

TABLE 76.—NEWSPAPERS AND PERIODICALS—AVERAGE AND AGGREGATE CIRCULATION PER ISSUE,
DIVISIONS: 1850

STATE OR TERRITORY.		Census.	AVERAGE CIRCULATION PER ISSUE.								
			All classes.	Daily.	Tri-weekly.	Semi-weekly.	Weekly.	Monthly.	Quarterly.	All other classes.	
85	Southern North Atlantic—Continued.										
86	Pennsylvania.....		1905	12,237	16,714	2,221	10,218	5,971	20,687	62,635	9,639
87			1900	8,264	9,783	1,641	6,003	4,181	18,240	47,424	10,146
88			1890	7,452	8,682	1,900	5,006	4,067	10,390	43,912	16,726
89			1880	5,625	6,285	1,500	4,600	3,255	10,926	29,180	20,096
90			1870	6,333	8,474	3,333	8,850	3,154	11,599	3,900	59,546
91			1860	3,904	8,053	3,900	3,267	2,360	16,596	1,133	
			1850	3,177	6,776	250	600	2,016		950	15,289
92	South Atlantic division.....		1905	2,845	5,353	2,433	3,008	1,737	5,986	13,316	4,695
93			1900	2,682	4,483	860	2,310	1,924	5,562	11,633	3,738
94			1890	2,348	3,900	348	684	1,971	4,196	3,935	3,590
95			1880	1,501	3,220	540	685	1,173	2,374	1,278	2,137
96			1870	1,528	3,275	1,087	837	1,250	2,476	1,200	1,063
97			1860	1,789	3,215	1,245	1,438	1,533	3,430	1,500	
98			1850	2,047	4,107	1,052	200	1,836	2,425	3,400	3,012
99	Delaware.....		1905	2,293	7,740		790	1,531	2,383		
100			1900	2,863	5,713		1,700	2,084	3,075		
101			1890	1,737	4,090			1,310	1,250		
102			1880	1,434	3,950			928	1,000		
103			1870	1,227	1,600		1,220	1,133	2,000		
104			1860	1,153			824	1,285			
105			1850	750			200	986			
106	Maryland.....		1905	3,558	14,708		8,088	1,668	5,598	3,815	800
107			1900	4,096	13,753		8,680	2,492	6,217	3,000	767
108			1890	3,162	12,462			2,062	3,679	6,925	2,916
109			1880	3,166	9,472			2,508	1,976	900	1,413
110			1870	2,676	10,365	5,015	800	1,845	2,325		
111			1860	2,145	8,867	3,073		1,284			
112			1850	1,835	8,498	801		1,128	2,567		2,000
113	District of Columbia.....		1905	11,848	22,632			8,896	14,805	902	792
114			1900	11,896	12,606		1,000	9,808	16,093	1,380	11,628
115			1890	18,891	15,663			22,136	7,500		
116			1880	5,485	9,125			5,535	4,747	1,050	
117			1870	3,700	8,000	2,000		3,492	2,250		
118			1860	5,347	6,582	4,600	1,500	6,500		3,000	
119			1850	5,560	3,967	1,550		9,061			
120	Virginia.....		1905	3,561	4,228	500	2,357	2,368	5,582	15,000	1,433
121			1900	3,075	2,496	1,033	2,172	2,315	4,213	20,083	3,233
122			1890	1,871	2,243	192	620	1,632	3,127	5,833	1,250
123			1880	1,449	1,892	740	699	1,073	2,363	1,767	6,308
124			1870	1,262	1,506	686	879	1,094	2,790		1,130
125			1860	2,170	2,960	550	1,928	1,838	8,780		
126			1850	1,009	1,074	757		881	2,000	1,000	3,717
127	West Virginia ¹		1905	1,480	2,319		1,909	1,289	1,624		1,750
128			1900	1,284	2,294		1,225	1,205	582		1,200
129			1890	1,164	2,511		250	1,065	1,100		425
130			1880	868	2,050	500	625	852	951	1,000	150
131			1870	923	1,298	275		883	1,067		1,550
132	North Carolina.....		1905	2,606	2,192		1,853	1,676	2,050	41,833	13,433
133			1900	1,440	1,716		1,633	1,392	1,205	700	1,392
134			1890	1,319	1,156		667	1,371	1,810	500	1,275
135			1880	894	793	375	700	878	1,125		1,308
136			1870	1,013	1,474	267	1,150	985	633		1,250
137			1860	1,073	444	200	540	1,151	-1,962		
138			1850	691		531		736			528
139	South Carolina.....		1905	1,517	2,335		1,775	1,332	1,320	5,000	2,200
140			1900	1,384	2,693	200	1,555	1,327	800		1,500
141			1890	1,448	2,854	200	463	1,341		3,500	2,000
142			1880	971	1,937	450	500	959	555	700	
143			1870	1,471	3,220	2,400		1,048	3,333	1,200	
144			1860	1,197	800	1,550		1,173	1,500		
145			1850	1,168	2,337	704		1,007		1,200	855
146	Georgia.....		1905	2,575	6,927	3,400	8,313	1,593	4,170		5,755
147			1900	2,074	3,810		3,771	1,619	3,966	1,000	2,058
148			1890	3,188	3,713		2,000	2,499	6,166	3,000	12,200
149			1880	1,259	2,141	600	1,100	1,069	3,708		700
150			1870	1,373	2,053	720	567	1,217	3,658		350
151			1860	1,724	1,554	720	900	1,744	2,269	1,000	
152			1850	1,258	701	313		1,356			1,588
153	Florida.....		1905	1,297	2,762		2,833	958	1,925		
154			1900	1,158	2,537	1,000	5,000	872	1,513		
155			1890	1,106	1,384	500		1,088	2,000		300
156			1880	739	1,300		500	719			
157			1870	458		410	300	471			
158			1860	705		700	2,500	611			
159			1850	575		200		617			

¹ Included in Virginia in 1860 and 1850.

PRINTING AND PUBLISHING.

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CLASSIFIED ACCORDING TO PERIOD OF ISSUE, BY STATES, TERRITORIES, AND GEOGRAPHIC TO 1905—Continued.

AGGREGATE CIRCULATION PER ISSUE.

All classes.	Daily.	Triweekly.	Semiweekly.	Weekly.	Monthly.	Quarterly.	All other classes.	
17,768,097	3,676,999	17,764	449,575	5,325,741	4,385,686	3,758,107	154,225	85
11,280,367	1,917,426	8,206	282,142	3,691,954	3,246,779	1,991,819	142,041	86
9,472,083	1,241,514	5,700	65,078	3,135,664	2,763,798	1,624,741	635,588	87
5,031,061	578,227	6,000	13,800	1,998,340	1,606,073	466,886	361,735	88
3,419,765	466,070	10,000	17,700	1,214,395	846,750	31,200	833,650	89
1,432,695	233,550	3,900	9,800	700,961	464,684	6,800		90
984,777	162,635	500	600	526,142		1,900	290,500	91
4,458,119	979,615	7,300	192,513	1,937,147	903,818	306,276	131,450	92
3,551,594	712,873	4,300	124,748	1,831,958	656,315	127,960	93,440	93
2,385,414	417,278	1,392	8,895	1,570,909	293,742	39,350	53,848	94
1,477,271	267,299	8,100	11,641	890,337	208,889	8,950	32,055	95
843,234	196,507	27,185	23,443	486,279	99,050	1,200	9,570	96
839,236	154,310	24,896	33,068	536,712	85,750	4,500		97
479,0.0	106,790	27,346	600	301,065	9,700	3,400	30,119	98
77,977	30,960		1,580	38,287	7,150			99
85,900	34,277		1,700	43,773	6,150			100
55,582	20,470			30,132	5,000			101
34,425	13,800			17,625	1,000			102
20,860	1,600		3,660	13,600	2,000			103
16,144			3,294	12,850				104
7,500			600	6,900				105
693,867	294,151		16,175	233,501	123,150	22,890	4,000	106
679,867	247,552		17,360	316,505	93,250	3,000	2,200	107
392,068	137,085			210,310	22,075	13,850	8,748	108
414,693	132,613			255,770	19,760	900	5,650	109
235,450	82,921	5,015	1,600	127,314	18,600			110
122,244	53,200	6,146		62,898				111
124,779	50,989	3,203		60,887	7,700		2,000	112
746,453	113,162			213,500	414,530	2,886	2,375	113
820,835	100,848		1,000	304,037	354,050	2,760	58,140	114
321,151	62,651			243,500	15,000			115
213,923	36,500			105,162	71,211	1,050		116
81,400	24,000	2,000		41,900	13,500			117
69,510	32,910	4,600	3,000	26,000		3,000		118
100,073	19,836	7,748		72,489				119
822,666	131,062	500	16,500	352,856	167,448	150,000	4,300	120
627,280	92,370	3,100	13,030	291,690	96,890	120,500	9,700	121
346,056	47,106	192	3,720	218,748	56,290	17,500	2,500	122
256,471	32,172	3,700	4,191	121,281	70,902	5,300	18,925	123
143,840	24,099	4,800	7,033	75,488	27,900		4,520	124
301,622	44,400	2,750	21,212	189,360	43,900			125
87,768	16,104	9,080		48,434	2,000	1,000	11,150	126
319,744	76,514		7,635	213,975	14,620		7,000	127
226,013	43,577		4,900	169,936	6,400		1,200	128
130,328	22,600		250	101,128	5,500		850	129
85,958	4,100	500	1,250	74,152	4,806	1,000	150	130
54,432	5,192	550		42,390	3,200		3,100	131
604,603	65,753		38,909	263,091	30,750	125,500	80,600	132
287,916	44,620		24,490	197,706	12,050	700	8,350	133
178,077	23,110		2,000	139,867	9,050	1,500	2,550	134
105,501	7,934	750	1,400	83,437	6,750		5,230	135
64,820	11,795	800	5,750	43,325	1,900		1,250	136
79,374	3,550	200	2,162	65,612	7,850			137
35,252		2,656		29,427			3,169	138
216,947	32,689		28,401	138,539	7,918	5,000	4,400	139
161,988	18,850	200	23,327	110,111	8,000		1,500	140
121,672	17,125	200	925	97,922		3,500	2,000	141
69,902	7,750	1,350	500	58,492	1,110	700		142
80,900	16,100	9,600		44,000	10,000	1,200		143
53,870	1,600	6,200		41,070	4,500	500		144
53,743	16,357	3,521		27,190		2,400	4,275	145
782,681	180,092	6,800	74,813	371,274	120,927		28,775	146
549,493	102,872		33,941	331,905	67,425	1,000	12,350	147
733,223	70,546		2,000	442,250	178,827	3,000	36,600	148
269,066	27,830	1,800	3,300	150,686	33,350		2,100	149
150,987	30,800	3,600	5,100	88,837	21,950		700	150
180,972	18,650	3,600	900	127,322	29,500	1,000		151
64,155	3,504	938		50,188			9,525	152
193,181	55,232		8,500	112,124	17,325			153
112,302	27,907	1,000	5,000	66,295	12,100			154
107,257	16,605	1,000		87,052	2,000		600	155
27,332	2,600		1,000	23,732				156
10,545		820	300	9,425				157
15,500		1,400	2,500	11,600				158
6,750		200		5,550				159

TABLE 76.—NEWSPAPERS AND PERIODICALS—AVERAGE AND AGGREGATE CIRCULATION PER ISSUE, DIVISIONS: 1850

	STATE OR TERRITORY.	Census.	AVERAGE CIRCULATION PER ISSUE.							
			All classes.	Daily.	Tri-weekly.	Semi-weekly.	Weekly.	Monthly.	Quarterly.	All other classes.
160	North Central division	1905	4,859	6,919	2,424	4,789	2,220	17,853	33,838	11,040
161		1900	4,013	5,388	1,864	4,755	2,140	11,489	51,429	9,052
162		1890	3,372	3,869	1,417	3,501	2,117	7,229	42,776	11,448
163		1880	1,911	2,590	1,092	1,420	1,446	3,718	17,464	5,878
164		1870	2,157	3,086	1,966	1,529	1,748	4,294	3,371	5,289
165		1860	1,632	1,897	995	987	1,499	3,452		
166		1850	1,075	1,259	586		949	1,821	3,113	2,788
167	Ohio	1905	7,173	7,245	2,505	2,092	3,534	14,030	54,230	19,162
168		1900	7,187	7,204	1,663	3,984	3,484	15,783	119,707	35,536
169		1890	6,051	4,130	1,404	2,328	3,144	9,024	53,720	41,584
170		1880	4,345	4,507	838	1,563	2,450	7,880	51,109	17,589
171		1870	3,515	5,373	1,695	2,400	3,089	4,867	3,950	6,775
172		1860	3,299	3,523	526	875	3,099	5,338		
173		1850	1,492	1,772	672		1,276		6,000	3,228
174	Indiana	1905	3,622	3,328		1,749	1,588	18,955	9,325	19,056
175		1900	2,507	2,214		1,883	1,530	11,176	7,770	3,887
176		1890	2,096	1,805		1,420	1,504	6,097	4,867	5,056
177		1880	1,552	1,913	858	2,250	1,464	2,410		979
178		1870	1,241	2,115	733	350	1,027	2,291		1,900
179		1860	857	683		320	841	1,788		
180		1850	590	413	625		591			2,000
181	Illinois	1905	8,885	10,485	2,632	3,054	4,281	22,107	37,960	3,712
182		1900	6,737	7,356	1,335	2,371	3,867	14,032	73,193	5,481
183		1890	6,359	6,401	450	1,541	4,007	8,941	64,407	5,252
184		1880	2,551	3,955	1,085	1,713	2,269	4,463	1,500	2,478
185		1870	3,411	4,267	4,057	738	2,448	6,817	4,000	9,146
186		1860	1,245	1,657	489	513	1,189	1,829		
187		1850	823	452	344		819	1,752	225	600
188	Michigan	1905	3,751	6,388	2,050	3,505	1,359	18,548	16,875	3,928
189		1900	3,402	5,298	1,595	3,352	1,441	15,139	10,080	2,128
190		1890	2,567	4,096	1,700	1,338	1,843	7,709	10,552	3,611
191		1880	1,465	2,167	2,083	1,322	1,347	1,958	6,875	1,707
192		1870	1,203	1,718	1,667		1,109	1,694		650
193		1860	1,092	1,769	9,000	3,050	899	1,300		
194		1850	908	1,346	166		890	3,433		1,867
195	Wisconsin	1905	2,783	4,760		5,249	1,677	9,616	4,676	4,869
196		1900	2,397	3,565	1,000	7,714	1,666	4,523	13,920	6,167
197		1890	2,310	2,289		44,368	1,762	2,586	6,875	8,305
198		1880	1,404	1,856	1,267	700	1,230	1,814		4,138
199		1870	1,807	3,089	1,600	2,283	1,662	2,465		950
200		1860	898	1,009	402		857	3,467		
201		1850	718	566	318		767	1,500		
202	Minnesota ¹	1905	3,697	8,977		9,057	1,816	13,475	6,280	12,632
203		1900	3,134	6,824	5,000	10,629	1,843	7,539	2,275	14,104
204		1890	2,610	6,014		15,000	1,667	3,546	1,000	26,346
205		1880	1,116	3,562	750		909	5,030		475
206		1870	1,166	2,467	840		1,012	2,360		
207		1860	664	631			667			
208	Iowa	1905	2,450	4,969	4,008	3,098	1,351	14,104	4,500	5,180
209		1900	1,804	3,347	2,746	2,908	1,331	4,706	3,441	3,749
210		1890	1,548	2,404	2,400	1,028	1,341	3,411	3,188	3,480
211		1880	1,071	1,479	200	633	997	1,990	3,000	832
212		1870	940	900	550	1,000	958	790	700	830
213		1860	686	856	348	250	687	680		
214		1850	776		1,850		710	525		
215	Missouri	1905	7,183	12,350		31,063	2,482	25,302	12,797	7,871
216		1900	5,847	8,810	200	23,511	2,680	13,649	63,932	9,542
217		1890	3,699	5,285	1,305	4,100	2,610	8,558	15,056	2,566
218		1880	2,041	3,228	1,265	1,100	1,750	3,418	800	2,823
219		1870	1,874	4,122	2,760		1,522	2,333	3,000	5,875
220		1860	2,046	2,784	2,600		1,940	2,209		
221		1850	1,151	2,181	438		1,028	1,614		
222	North Dakota ²	1905	1,014	2,386		1,687	828	3,272	7,500	3,500
223		1900	999	2,002		3,550	843	3,775		
224		1890	993	1,317		1,000	897	2,200		
225	South Dakota ²	1905	1,074	1,347		1,370	755	5,327		16,696
226		1900	1,065	1,029		1,600	801	3,822		9,422
227		1890	818	727		800	745	1,715		4,000
228	Dakota ²	1880	553	500			569			
229		1870	551				551			
230	Nebraska ¹	1905	2,817	5,811	1,067	1,435	1,611	10,242		60,547
231		1900	2,036	3,825	1,200	3,313	1,433	9,141	983	2,421
232		1890	1,425	2,732		450	1,134	7,623		2,614
233		1880	888	1,553		500	791	2,173		600
234		1870	752	979	500		747	462		
235		1860	696			1,000	646	1,000		
236	Kansas ¹	1905	2,152	2,401	1,816	2,778	1,692	9,126	6,675	1,861
237		1900	1,673	1,988	800	6,680	1,161	6,295	4,260	2,722
238		1890	1,092	1,913		827	960	3,317	700	743
239		1880	961	1,528		1,800	878	1,871		1,200
240		1870	998	1,464	460		915	2,000		
241		1860	812	550			845			

¹No establishments reported in 1850.²See Dakota for 1850 to 1880.

CLASSIFIED ACCORDING TO PERIOD OF ISSUE, BY STATES, TERRITORIES, AND GEOGRAPHIC TO 1905—Continued.

AGGREGATE CIRCULATION PER ISSUE.							
All classes.	Daily.	Triweekly.	Semiweekly.	Weekly.	Monthly.	Quarterly.	All other classes.
48,605,676	7,085,285	63,019	1,498,870	16,391,262	17,477,790	4,466,578	1,622,872
35,747,654	5,194,529	54,037	1,488,392	14,098,698	9,133,753	4,628,622	1,149,623
23,742,919	2,669,904	19,835	283,562	11,510,530	4,474,645	3,422,124	1,362,319
9,440,808	890,330	36,046	48,294	5,825,490	1,423,924	611,250	505,474
5,054,398	564,715	86,520	18,350	3,218,270	910,243	23,600	232,700
2,412,686	216,240	27,863	16,776	1,839,807	307,250		
719,091	71,760	16,397		504,657	36,417	6,225	83,635
8,815,754	1,376,460	17,535	96,214	2,766,811	2,006,287	2,169,200	383,247
7,467,358	1,224,715	13,300	211,161	2,411,172	1,420,501	1,795,609	390,900
5,639,781	499,712	9,825	44,230	1,996,400	956,522	1,342,997	790,095
3,093,931	216,336	6,700	6,250	1,328,133	622,531	562,200	351,781
1,388,367	139,705	13,560	7,200	923,502	228,750	7,900	67,750
1,121,682	84,560	4,212	3,500	805,810	218,850		
389,463	46,083	6,718		256,427		6,000	74,235
3,038,793	535,740		55,965	892,184	1,288,928	37,300	228,676
2,108,805	345,404		77,185	858,424	715,292	77,700	34,800
1,299,418	166,051		2,840	673,798	371,909	29,200	55,620
661,111	72,698	1,716	2,250	518,322	60,250		5,875
363,542	42,300	2,200	350	239,342	64,150		15,200
159,381	8,881		1,600	134,600	14,300		
63,138	3,720	1,250		56,168			2,000
15,237,805	2,013,115	18,427	158,786	4,671,043	6,344,791	1,898,000	133,643
10,429,368	1,449,087	5,338	170,720	3,866,983	3,072,932	1,683,434	180,874
7,891,219	774,486	900	30,820	3,437,663	1,627,250	1,867,800	152,300
2,421,275	270,923	6,510	29,129	1,527,042	401,646	31,500	54,525
1,722,541	166,400	40,570	2,950	890,913	490,808	12,000	118,900
356,159	38,100	2,936	1,026	282,997	31,100		
88,050	3,615	1,375		68,768	12,267	225	1,800
2,906,711	549,383	8,200	91,139	774,758	1,372,519	67,500	43,212
2,374,403	370,848	7,975	192,098	752,032	984,025	50,400	17,025
1,611,915	212,975	1,700	6,690	869,764	377,734	10,552	32,500
620,974	62,839	6,250	3,965	488,927	33,293	13,750	11,950
253,774	27,485	5,000		192,889	27,100		1,300
128,848	14,150	9,000	9,150	92,648	3,900		
52,690	4,039	333		32,418	10,300		5,600
1,953,860	309,390		194,230	902,467	500,046	23,380	24,347
1,426,499	213,882	1,000	161,995	771,574	189,948	69,600	18,500
1,053,389	107,594		133,105	657,300	51,715	20,625	83,050
436,576	33,400	3,800	1,400	316,179	36,282		45,515
343,385	43,250	3,200	6,850	266,000	22,185		1,900
139,145	14,125	3,220	111,400	111,400	10,400		
33,015	3,398	1,271		26,846	1,500		
2,913,117	457,833		63,396	1,151,145	956,696	31,400	252,647
1,949,630	300,266	5,000	95,660	908,478	452,329	4,550	183,347
1,023,005	180,433		15,000	518,563	148,933	2,000	158,076
222,074	28,493	750		167,206	25,150		475
110,778	14,800	4,200		79,978	11,800		
32,554	2,524			30,030			
2,614,097	327,942	12,025	176,605	1,167,294	846,256	27,000	56,975
1,884,875	217,589	19,224	168,672	1,105,666	301,205	27,529	44,990
1,088,019	110,563	4,800	14,397	795,077	133,032	12,750	17,400
547,340	38,455	200	1,900	449,550	51,740	3,000	2,495
219,090	19,800	1,650	1,000	187,840	3,950	700	4,150
89,240	7,706	695	500	76,945	3,400		
22,500		3,700		17,750	1,050		
7,247,505	1,136,174		590,203	1,814,457	3,365,168	191,948	149,555
5,495,802	810,492	200	329,153	1,862,856	1,378,586	895,050	219,465
2,615,135	428,094	2,610	28,700	1,346,714	624,767	135,500	48,750
965,285	122,660	10,120	1,100	645,747	153,800	800	31,058
522,866	86,555	13,800		342,361	53,650	3,000	23,500
354,007	44,550	7,800		277,357	24,300		
70,235	10,905	1,750		46,280	11,300		
236,175	21,472		5,060	175,513	19,630	7,500	7,000
138,890	18,021		7,100	106,219	7,550		
86,425	9,220		2,000	66,405	8,800		
318,998	21,553		6,850	198,604	58,600		33,391
232,166	16,463		1,600	151,438	34,400		28,265
142,362	13,812		2,400	105,000	17,150		4,000
36,943	4,500			32,443			
1,652				1,652			
1,768,874	180,126	3,200	21,530	861,840	399,444		302,734
1,095,538	122,414	1,200	53,008	650,349	255,935	2,950	9,682
635,505	84,698		900	447,757	83,850		18,300
154,570	18,630		500	121,800	13,040		600
31,600	6,850	500		22,400	1,850		
9,750			1,000	7,750	1,000		
1,553,987	156,097	3,632	38,892	1,015,146	319,425	13,350	7,445
1,144,320	105,348	800	20,040	653,507	321,050	21,800	21,775
756,746	82,266		2,480	596,089	72,983	700	2,228
280,729	21,396		1,800	230,141	26,192		1,200
96,803	17,570	1,840		71,393	6,000		
21,926	1,650			20,270			

* See North and South Dakota for 1890 to 1905. No establishments reported in 1860 and 1850.

TABLE 76.—NEWSPAPERS AND PERIODICALS—AVERAGE AND AGGREGATE CIRCULATION PER ISSUE,
DIVISIONS: 1850

STATE OR TERRITORY.	Census.	AVERAGE CIRCULATION PER ISSUE.							
		All classes.	Daily.	Tri-weekly.	Semi-weekly.	Weekly.	Monthly.	Quarterly.	All other classes.
South Central division.....	1905	2,627	3,635	1,800	5,526	1,459	4,241	47,007	6,877
242	1900	2,946	3,269	1,067	4,252	1,783	5,009	103,577	5,810
243	1890	2,593	3,211	1,427	2,252	2,024	2,786	52,720	6,136
244	1880	1,186	1,828	580	1,421	991	1,750	2,450	6,410
245	1870	1,180	2,347	652	981	970	3,168	1,800	4,000
246	1860	1,506	2,766	1,044	1,708	1,265	5,321	1,750	
247	1850	994	1,657	686		871	4,560		828
Kentucky.....	1905	2,934	4,803	1,800	1,971	2,030	4,193	5,375	30,999
249	1900	3,898	6,097	1,800	5,232	2,239	8,202	2,167	22,580
250	1890	3,338	5,406	3,300	2,886	2,700	2,205		13,456
251	1880	2,184	3,045	900	1,141	1,743	1,272		42,850
252	1870	2,215	5,317	875	1,025	2,028	2,814		
253	1860	2,332	4,875	917	2,000	1,937	6,280		
254	1850	1,288	804	1,030		1,545			838
Tennessee.....	1905	9,335	10,877		2,907	3,275	7,489	56,775	7,243
256	1900	12,474	10,357		1,283	6,076	9,648	154,090	2,588
257	1890	6,622	4,608		2,070	4,474	4,929	82,583	3,213
258	1880	1,822	3,099		850	1,714	2,385	2,450	1,223
259	1870	2,483	2,664	1,150	1,000	1,800	6,775	1,800	15,000
260	1860	2,132	1,412	644		1,669	10,940	1,750	
261	1850	1,353	1,777	854		1,143	2,650		
Alabama.....	1905	1,714	4,833		3,783	1,249	1,689		5,750
263	1900	1,315	2,560	700	2,170	1,086	1,700		2,392
264	1890	1,815	2,297		1,500	1,606	974	14,500	975
265	1880	862	1,932	200		778	1,175		1,500
266	1870	1,024	1,824	350	1,435	936			
267	1860	975	980	481	400	965	2,400		
268	1850	571	467	342		605			750
Mississippi.....	1905	1,032	1,603		1,012	954	1,288		2,433
270	1900	949	1,258	502	540	914	1,653		850
271	1890	908	1,225	500		894	850		1,018
272	1880	806	840	733	400	773	2,033		
273	1870	647	767	608	800	652	560		350
274	1860	1,216	3,074	1,250	5,000	1,013			
275	1850	611		393		630			
Louisiana.....	1905	1,895	5,621		3,777	1,209	1,622	1,000	1,715
277	1900	1,875	4,652	1,200	5,450	1,227	983		2,900
278	1890	2,777	6,550		5,200	2,282	3,123	1,700	2,067
279	1880	1,330	3,460	1,000	8,000	969	475		2,200
280	1870	915	4,914	800	1,062	533	500		
281	1860	1,490	5,125		617	1,111			
282	1850	1,460	2,917	722		856	12,200		
Arkansas.....	1905	1,204	1,493		1,240	1,061	3,238	250	756
284	1900	1,114	1,907	1,000	2,521	943	2,363	5,000	333
285	1890	1,175	1,137			1,172	1,993		600
286	1880	1,067	1,006		1,500	927	500		5,283
287	1870	532	417	300		548	500		
288	1860	1,047			1,000	1,049			
289	1850	806				806			
Indian Territory ¹	1905	843	1,221		1,000	780	2,019		
291	1900	783	558			819	450		
292	1890	999	500			1,062			
293	1880	1,353				1,353			
Oklahoma ²	1905	1,257	1,973		7,000	990	3,391		12,500
295	1900	1,092	1,630		800	1,011	1,383		500
296	1890	698	575			722	1,100		
Texas.....	1905	1,937	2,866		12,662	1,327	3,925	3,500	2,050
298	1900	1,461	1,778		4,609	1,266	1,861	1,250	2,563
299	1890	1,506	2,074	480	1,207	1,358	2,831	1,000	10,000
300	1880	1,145	1,262	600	725	938	5,504		650
301	1870	493	292	490	740	509			300
302	1860	1,214	1,787	3,096		1,147	694		
303	1850	535		674		512			
Western division.....	1905	2,105	4,437	1,040	2,460	1,181	4,741	2,258	2,365
305	1900	1,819	3,554	990	1,514	1,255	2,725	9,769	2,427
306	1890	1,807	3,268	752	1,303	1,392	3,115	7,000	1,629
307	1880	1,395	1,870	2,000	1,667	1,131	2,619	1,683	1,506
308	1870	1,939	2,157	1,536	715	1,752	3,613	2,250	300
309	1860	1,844	2,468	1,650	767	1,430	7,720		
310	1850	628	505			689			750
Montana ⁴	1905	1,712	4,959		1,600	1,094	1,540		3,500
312	1900	1,429	3,833		2,345	887	2,165	7,000	
313	1890	1,327	2,130	960	1,250	1,209	617		1,000
314	1880	1,388	304			1,660			
315	1870	1,958	2,327	400		2,033			
Idaho ⁴	1905	862	2,286	900	1,217	693	2,000		500
317	1900	678	1,020		929	615	1,500		625
318	1890	645	567		440	668			
319	1880	628		500	500	664			
320	1870	458		250	600	475			

¹No establishments reported in 1870, 1880, and 1890.²Reported as Indian Territory prior to 1890.

PRINTING AND PUBLISHING.

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CLASSIFIED ACCORDING TO PERIOD OF ISSUE, BY STATES, TERRITORIES, AND GEOGRAPHIC TO 1905—Continued.

AGGREGATE CIRCULATION PER ISSUE.							
All classes.	Daily.	Triweekly.	Semiweekly.	Weekly.	Monthly.	Quarterly.	All other classes.
7,284,404	977,868	3,600	315,005	3,207,176	712,510	1,786,271	281,974
6,417,164	706,091	6,402	284,870	3,063,191	646,110	1,553,650	150,850
3,765,571	443,185	4,280	38,280	2,375,794	247,982	527,200	128,850
1,374,369	151,739	5,800	19,894	959,341	117,245	4,900	115,390
755,360	124,395	13,700	22,570	497,095	79,200	1,800	16,000
807,337	101,350	21,933	10,250	573,169	85,135	3,500	7,456
318,120	56,347	19,902		211,615	22,800		
959,320	163,291	3,600	37,458	466,926	142,550	21,500	123,995
1,099,172	164,624	1,800	125,575	425,323	262,450	6,500	112,900
727,781	135,150	3,300	20,200	445,485	29,451		94,195
397,564	33,492	1,800	6,844	240,473	29,255		85,700
197,130	31,900	3,500	4,100	137,930	19,700		
179,597	19,500	2,750	2,000	123,947	31,400		
79,868	7,237	7,213		58,712			6,706
3,033,760	184,912		8,720	753,290	247,143	1,760,021	79,674
3,131,017	165,718		7,700	1,136,199	270,150	1,540,900	10,350
1,450,118	82,941		4,140	756,105	98,582	495,500	12,850
293,288	30,995		1,700	224,503	23,850	4,900	7,340
225,952	34,630	2,300	1,000	117,022	54,200	1,800	15,000
176,908	11,300	4,509		101,839	43,760	3,500	
67,672	14,218	1,707		41,147	10,600		
347,890	101,494		3,783	213,543	11,820		17,250
230,079	48,645	700	4,340	155,244	6,800		14,350
246,847	32,154		1,500	173,477	8,766	29,000	1,950
93,073	9,660	200		73,163	7,050		3,000
91,165	16,420	700	2,870	71,175	7,200		
93,595	8,820	2,886	400	74,289			
34,282	2,804	1,708		29,020			750
209,421	22,443		4,050	167,903	7,725		7,300
168,942	16,348	502	1,080	142,702	6,610		1,700
108,061	7,350	500		91,206	5,950		3,055
87,904	4,200	2,200	400	75,004	6,100		
71,868	2,300	3,650	2,400	60,018	2,800		700
88,737	15,370	2,500	5,000	65,867			
30,555		1,573		28,982			
358,150	140,525		18,885	172,949	16,216	1,000	8,575
300,072	106,990	2,400	32,698	137,434	14,750		5,800
358,183	78,600		5,200	225,883	40,600	1,700	6,200
131,630	38,065	1,000	8,000	81,415	950		2,200
84,165	34,395	800	8,500	39,970	500		
120,650	41,000		1,850	77,800			
80,288	32,088	4,333		31,667	12,200		
341,982	40,304		6,200	246,118	45,330	250	3,780
262,903	38,140	1,000	11,285	187,578	18,900	5,000	1,000
192,749	15,917			166,482	9,750		600
103,501	5,030		1,500	80,621	500		15,850
29,830	1,250	300		26,280	2,000		
39,812			1,000	38,812			
7,250				7,250			
140,781	18,320		1,000	115,404	6,057		
50,141	3,350			45,891	900		
8,995	500			8,495			
4,060				4,060			
349,573	57,224		7,000	236,609	23,740		25,000
120,077	14,674		800	99,953	4,150		500
14,654	3,450			10,104	1,100		
1,543,527	249,355		227,909	834,434	211,929	3,500	16,400
1,054,761	147,602		101,392	732,867	61,400	1,250	10,250
658,183	87,123	480	7,240	498,557	53,783	1,000	10,000
263,289	30,297	600	1,450	180,102	49,540		1,300
55,250	3,500	2,450	3,700	45,300			300
108,038	5,360	9,288		90,615	2,775		
18,205		3,368		14,837			
4,556,286	1,353,149	5,201	213,995	1,755,153	1,128,358	27,100	73,330
3,005,483	863,602	4,140	95,392	1,445,328	414,196	127,000	55,825
2,037,017	614,329	3,010	32,575	1,158,078	202,475	7,000	19,550
954,295	229,962	6,000	30,010	542,878	128,345	5,050	12,050
608,823	120,765	10,750	7,150	371,408	93,950	4,500	300
267,313	59,244	3,300	2,300	155,869	38,600	(3)	
6,903	2,019			4,134			750
164,374	59,511		11,200	75,463	7,700		10,500
127,148	42,164		9,380	62,109	6,495	7,000	
68,980	19,170	960	1,250	44,750	1,850		1,000
20,827	912			19,915			
19,580	6,980	400		12,200			
79,333	13,718	900	10,950	51,265	2,000		500
48,795	5,100		4,645	36,300	1,500		1,250
21,270	1,700		880	18,690			
5,650		500	500	4,650			
2,750		250	600	1,900			

*No circulation reported.

*No establishments reported in 1860 and 1850.

TABLE 76.—NEWSPAPERS AND PERIODICALS—AVERAGE AND AGGREGATE CIRCULATION PER ISSUE,
DIVISIONS: 1850

STATE OR TERRITORY.		Census.	AVERAGE CIRCULATION PER ISSUE.							
			All classes.	Daily.	Tri-weekly.	Semi-weekly.	Weekly.	Monthly.	Quarterly.	All other classes.
Western division—Continued.										
322	Wyoming ¹	1905	1,151	1,734	.....	1,280	779	4,583	.....	.....
323		1900	778	825	500	493	653	2,333	.....	.....
324		1890	975	924	.....	.....	988	.....	.....	.....
325		1880	632	662	.....	.....	617	.....	.....	.....
326		1870	325	275	.....	.....	350	.....	.....	.....
327	Colorado ¹	1905	2,397	5,217	401	817	1,074	9,179	.....	2,050
328		1900	2,102	3,738	500	667	1,595	3,838	1,250	692
329		1890	1,235	2,963	1,300	720	842	4,875	.....	.....
330		1880	1,294	1,884	.....	600	1,070	2,475	.....	.....
331		1870	911	550	.....	.....	1,061	1,000	.....	.....
332	New Mexico.....	1905	794	1,329	.....	.....	733	.....	.....	.....
333		1900	772	1,273	.....	.....	714	500	800	1,150
334		1890	681	1,284	.....	.....	604	.....	.....	500
335		1880	530	667	.....	.....	484	.....	.....	.....
336		1870	305	225	.....	.....	325	.....	.....	.....
337		1860	575	.....	.....	.....	575	.....	.....	.....
338		1850	575	.....	.....	.....	400	.....	.....	750
339	Arizona ¹	1905	1,007	1,400	.....	.....	797	1,838	.....	.....
340		1900	792	1,146	.....	.....	700	206	.....	.....
341		1890	769	651	.....	.....	814	.....	.....	.....
342		1880	968	720	.....	.....	1,106	.....	.....	.....
343		1870	280	.....	.....	.....	280	.....	.....	.....
344	Utah ¹	1905	2,303	4,414	1,600	6,442	1,153	4,286	150	5,167
345		1900	1,712	4,027	2,000	4,376	735	3,450	75	5,500
346		1890	2,429	2,281	.....	2,868	1,367	3,000	.....	3,600
347		1880	1,904	1,987	.....	2,050	1,707	1,525	.....	3,500
348		1870	1,425	900	.....	967	2,800	250	.....	.....
349		1860	3,150	.....	.....	.....	3,150	.....	.....	.....
350	Nevada ¹	1905	630	770	.....	588	572	.....	.....	.....
351		1900	519	581	100	583	501	500	.....	.....
352		1890	969	1,450	.....	.....	648	.....	.....	.....
353		1880	841	1,225	.....	.....	561	500	.....	.....
354		1870	942	1,500	.....	475	570	.....	.....	.....
355	Washington ²	1905	2,047	6,543	.....	12,259	964	2,821	.....	5,467
356		1900	1,543	5,638	500	2,617	1,052	1,972	2,650	1,833
357		1890	1,420	2,720	.....	.....	1,179	2,279	.....	450
358		1880	698	367	.....	.....	745	.....	.....	.....
359		1870	485	160	600	.....	452	750	.....	.....
360		1860	588	.....	.....	.....	588	.....	.....	.....
361	Oregon.....	1905	1,785	4,040	.....	1,518	1,137	5,088	.....	1,463
362		1900	1,659	2,438	.....	1,058	1,343	2,779	.....	2,200
363		1890	1,658	2,045	.....	1,400	1,542	2,500	.....	500
364		1880	1,320	1,581	.....	.....	1,133	2,555	1,600	.....
365		1870	1,507	1,588	.....	.....	1,169	1,800	.....	.....
366		1860	1,726	400	.....	.....	1,235	(*)	.....	.....
367		1850	567	.....	.....	.....	567	.....	.....	.....
368	California.....	1905	2,533	4,661	1,150	1,012	1,579	4,214	2,450	1,116
369		1900	2,329	4,065	480	1,061	1,557	2,744	18,750	2,975
370		1890	2,531	4,591	375	619	1,942	3,336	7,000	1,650
371		1880	2,006	3,288	2,750	2,071	1,580	3,064	1,725	1,425
372		1870	2,447	2,852	2,375	675	2,133	.....	2,750	300
373		1860	1,900	2,657	1,650	767	1,475	6,920	.....	.....
374		1850	660	505	.....	.....	867	.....	.....	.....

¹ No establishments reported in 1860 and 1850.

² No establishments reported in 1850.

CLASSIFIED ACCORDING TO PERIOD OF ISSUE, BY STATES, TERRITORIES, AND GEOGRAPHIC TO 1905—Continued.

AGGREGATE CIRCULATION PER ISSUE.							
All classes.	Daily.	Triweekly.	Semiweekly.	Weekly.	Monthly.	Quarterly.	All other classes.
56,423	6,936		7,677	28,060	13,750		322
32,687	3,300	500	7,985	20,902	7,000		323
24,370	4,620			19,750			324
5,686	1,986			3,700			325
1,950	550			1,400			326
879,764	219,106	401	4,900	294,242	348,815		327
521,213	157,016	500	2,000	285,425	72,947	1,250	328
229,669	68,150	1,300	2,160	128,809	29,250		329
95,744	26,375		600	58,869	9,900		330
12,750	2,200			9,550	1,000		331
46,840	7,975			38,865			332
32,420	3,820			25,000	500	800	333
23,157	5,134			17,523			334
6,355	2,000			4,355			335
1,525	225			1,300			336
1,150				1,150			337
1,150				400			338
56,366	22,404			30,286	3,676		339
34,054	11,456			22,392	206		340
22,309	5,210			17,099			341
13,550	3,600			9,950			342
280				280			343
195,785	44,141	1,600	38,652	65,742	30,000	150	344
123,279	24,163	2,000	30,630	36,036	13,800	150	345
68,000	20,525		20,075	8,200	12,000		346
36,175	7,950		8,200	11,950	4,575		347
14,250	2,700		2,900	8,400	250		348
6,300				6,300			349
19,540	6,930		1,175	11,435			350
18,153	5,226	160	1,750	10,517	500		351
14,530	8,700			5,830			352
27,745	17,155			10,090	500		353
11,300	7,500		950	2,850			354
628,282	189,735		85,811	217,845	118,491		355
307,128	84,570	500	7,850	161,990	41,418	5,300	356
204,488	48,954			139,134	15,950		357
16,751	1,100			15,651	(³)		358
6,785	160	600		4,525	1,500		359
2,350				2,350			360
380,289	92,914		27,330	172,795	81,400		361
311,950	51,191		14,810	166,511	75,038		362
208,855	32,712		1,400	154,243	20,000		363
85,786	11,070			57,786	15,330	1,600	364
45,750	6,350			30,400	9,000		365
27,620	500			14,820	4,000	(³)	366
1,134				1,134			367
2,049,290	689,779	2,300	26,300	769,155	522,526	26,950	368
1,448,656	475,596	480	23,342	618,146	194,792	112,500	369
1,151,389	399,454	750	6,810	604,050	123,425	7,000	370
640,026	157,814	5,500	20,710	345,962	98,040	3,450	371
491,803	94,100	9,500	2,700	298,603	82,200	4,500	372
229,893	58,444	3,300	2,300	131,249	34,600		373
4,619	2,019			2,600			374

² No circulation reported.

⁴ Number of publications not reported.

MANUFACTURES.

TABLE 77.—NEWSPAPERS AND PERIODICALS—AGGREGATE NUMBER OF COPIES ISSUED DURING THE CENSUS YEAR, CLASSIFIED ACCORDING TO PERIOD OF ISSUE, BY STATES, TERRITORIES, AND GEOGRAPHIC DIVISIONS: 1905 AND 1900.

STATE OR TERRITORY..	Census.	Total number of publications.	AGGREGATE NUMBER OF COPIES ISSUED DURING THE CENSUS YEAR.							
			All classes.	Daily.	Triweekly.	Semiweekly.	Weekly.	Monthly.	Quarterly.	All other classes.
Continental United States	1905	21,394	10,325,143,188	7,181,616,774	46,206,264	305,496,256	1,910,065,924	771,673,860	46,838,620	63,245,490
	1900	18,226	7,856,028,749	5,176,542,700	35,663,160	294,618,272	1,780,586,704	454,438,764	44,269,688	69,909,461
North Atlantic division	1905	4,886	5,014,802,879	3,640,914,545	33,863,544	74,576,424	698,947,548	523,004,148	20,493,720	17,002,950
	1900	4,165	3,838,858,811	2,631,454,737	24,918,036	87,304,464	717,749,604	324,234,276	18,520,760	34,676,934
New England.....	1905	1,161	949,894,620	679,021,304	639,600	9,915,776	114,941,060	133,736,856	1,813,924	9,826,100
	1900	1,025	798,922,597	533,630,895	834,600	9,833,928	142,833,756	101,600,784	1,500,984	8,687,650
Maine.....	1905	158	116,346,455	23,251,831	70,200	2,598,960	10,917,972	79,470,492	6,400	30,600
	1900	177	106,420,850	19,472,790	70,200	1,843,712	11,479,468	73,445,880	28,200	150,800
New Hampshire.....	1905	124	24,894,722	16,224,042	265,200	7,612,280	774,000	774,000	19,200	19,200
	1900	88	22,421,947	13,277,147	819,000	8,262,800	63,000	63,000	19,200	19,200
Vermont.....	1905	100	17,774,046	11,219,798	873,600	6,346,548	190,800	190,800	16,900	16,900
	1900	79	15,281,431	8,356,787	873,600	5,595,044	423,000	423,000	31,800	31,800
Massachusetts.....	1905	566	646,069,711	501,492,111	234,000	3,798,600	76,751,168	52,490,508	1,782,324	9,521,000
	1900	486	531,739,780	384,163,704	234,000	3,364,400	107,451,188	27,085,704	1,452,384	8,222,400
Rhode Island.....	1905	57	56,484,726	53,481,110	698,776	2,056,184	247,656	1,000	1,000	1,000
	1900	40	43,692,180	40,952,572	15,600	702,416	1,958,892	50,700	12,000	12,000
Connecticut.....	1905	156	88,324,960	73,352,412	70,200	2,819,440	11,256,908	563,400	24,200	238,400
	1900	155	79,366,409	67,407,895	70,200	3,049,800	8,086,364	532,500	7,200	282,650
Southern North Atlantic.....	1905	3,725	4,064,908,259	2,961,893,241	33,223,944	64,660,648	584,006,488	395,267,292	18,679,796	7,176,850
	1900	3,140	3,039,936,214	2,097,823,842	24,083,436	77,470,536	574,915,848	222,633,492	17,019,776	25,989,284
New York.....	1905	1,897	2,261,820,559	1,583,631,893	30,452,760	17,429,048	284,735,828	338,605,512	3,637,268	3,328,250
	1900	1,477	2,012,832,983	1,376,084,823	22,803,300	47,930,168	363,849,148	183,324,744	8,506,500	10,334,300
New Jersey.....	1905	376	123,371,421	96,419,045	475,800	22,332,128	4,033,548	10,100	100,800	100,800
	1900	298	103,924,361	70,212,269	197,600	19,085,092	3,474,000	546,000	13,536,000	13,536,000
Pennsylvania.....	1905	1,452	1,679,716,279	1,281,842,303	2,771,184	46,755,800	276,938,532	52,628,232	15,032,428	3,747,800
	1900	1,365	923,178,870	651,526,750	1,280,136	29,342,768	191,981,608	38,961,348	7,967,276	2,118,984
South Atlantic division.....	1905	1,567	473,542,877	336,506,911	1,138,800	20,021,352	100,731,644	10,845,816	1,225,104	3,073,250
	1900	1,324	361,278,033	241,472,145	670,800	12,973,792	95,261,816	7,875,780	511,840	2,511,860
Delaware.....	1905	34	11,931,524	9,690,480	164,320	1,990,924	85,800	85,800	1,990,924	85,800
	1900	30	15,037,901	12,511,105	176,800	2,276,196	73,800	73,800	2,276,196	73,800
Maryland.....	1905	195	117,586,803	102,124,191	1,682,200	12,142,052	1,477,800	91,560	69,000	69,000
	1900	166	98,959,220	79,520,720	1,805,440	16,458,260	1,119,000	12,000	43,800	43,800
District of Columbia.....	1905	63	55,274,780	39,156,426	104,000	11,102,000	4,974,360	11,544	30,450	30,450
	1900	69	56,720,860	35,184,936	104,000	15,809,924	4,248,600	11,040	1,362,360	1,362,360
Virginia.....	1905	231	67,098,318	44,293,830	78,000	1,716,000	18,348,512	2,009,376	600,000	52,600
	1900	204	51,213,030	32,447,550	483,600	1,355,120	15,167,880	1,162,680	482,000	114,200
West Virginia.....	1905	216	37,783,210	25,506,230	794,040	11,126,700	175,440	180,800	180,800	180,800
	1900	176	24,453,873	15,002,001	509,600	8,836,672	76,800	28,800	28,800	28,800
North Carolina.....	1905	232	42,845,981	22,242,713	4,046,536	13,680,732	369,000	502,000	2,005,000	2,005,000
	1900	200	28,081,732	14,909,860	2,546,960	10,280,712	144,600	2,800	196,800	196,800
South Carolina.....	1905	143	21,707,233	11,299,685	2,953,704	7,204,028	95,016	20,000	134,800	134,800
	1900	117	15,355,730	6,607,250	31,200	2,426,008	5,725,772	96,000	469,500	469,500
Georgia.....	1905	304	93,636,220	63,436,896	1,060,800	7,780,552	19,306,248	1,451,124	600,600	600,600
	1900	265	57,001,092	35,102,668	3,529,864	17,259,060	809,100	4,000	296,400	296,400
Florida.....	1905	149	25,678,808	18,756,460	884,000	5,830,448	207,900	145,200	145,200	145,200
	1900	97	14,454,595	10,186,955	520,000	3,447,340	145,200	145,200	145,200	145,200
North Central division.....	1905	10,004	3,679,520,139	2,396,730,985	9,830,964	155,882,480	852,345,624	209,733,480	17,866,312	37,130,294
	1900	8,907	2,810,281,262	1,758,466,985	8,429,772	154,712,768	733,132,296	109,605,036	18,514,488	27,339,917
Ohio.....	1905	1,229	650,630,376	452,108,716	2,735,460	10,006,256	143,874,172	24,075,444	8,676,800	9,153,528
	1900	1,039	591,526,155	409,050,419	2,074,800	21,960,744	125,380,944	17,046,012	7,182,436	8,830,800
Indiana.....	1905	839	260,708,792	187,390,304	5,820,360	46,393,568	15,467,136	149,200	5,488,224	5,488,224
	1900	841	175,432,092	113,134,600	8,027,240	44,638,048	8,583,504	310,800	737,900	737,900
Illinois.....	1905	1,715	1,031,458,373	682,677,307	2,874,612	16,513,744	242,894,236	76,137,492	7,592,000	2,768,982
	1900	1,548	746,880,247	479,599,227	832,728	17,754,880	201,083,116	36,875,184	6,733,736	4,001,376
Michigan.....	1905	775	247,790,207	179,345,039	1,279,200	9,478,456	40,287,416	16,470,228	270,000	659,928
	1900	698	200,457,376	127,764,920	1,244,100	19,978,192	39,105,664	11,808,300	201,600	354,600
Wisconsin.....	1905	702	176,248,902	102,694,634	156,000	20,199,920	46,928,284	6,000,552	93,520	332,082
	1900	595	132,510,954	72,383,850	156,000	16,847,480	40,121,848	2,279,376	278,400	444,000
Minnesota.....	1905	788	238,206,231	154,126,673	6,593,184	59,859,540	11,480,352	125,600	6,020,882	6,020,882
	1900	622	169,257,418	101,477,446	780,000	9,948,640	47,240,856	5,427,948	18,200	4,864,328
Iowa.....	1905	1,067	201,574,146	109,372,566	1,875,900	18,316,920	60,699,288	10,155,072	108,000	996,400
	1900	1,045	158,895,153	74,629,953	2,998,944	17,541,888	57,494,632	3,614,460	110,116	2,505,160
Missouri.....	1905	1,009	590,044,696	399,228,882	31,200	61,381,112	94,351,764	40,382,016	767,792	2,933,130
	1900	940	446,832,760	290,760,204	31,200	34,231,912	96,868,512	16,543,032	3,580,200	4,817,700
North Dakota.....	1905	233	17,203,340	7,212,864	526,240	9,126,676	235,560	30,000	72,000	72,000
	1900	139	12,544,161	6,191,773	738,400	5,523,388	90,600	90,600	90,600	90,600

TABLE 77.—NEWSPAPERS AND PERIODICALS—AGGREGATE NUMBER OF COPIES ISSUED DURING THE CENSUS YEAR, CLASSIFIED ACCORDING TO PERIOD OF ISSUE, BY STATES, TERRITORIES, AND GEOGRAPHIC DIVISIONS: 1905 AND 1900—Continued.

STATE OR TERRITORY.	Census.	Total number of publications.	AGGREGATE NUMBER OF COPIES ISSUED DURING THE CENSUS YEAR.							
			All classes.	Daily.	Triweekly.	Semiweekly.	Weekly.	Monthly.	Quarterly.	All other classes.
North Central division—Cont'd.										
South Dakota.....	1905	297	19,992,117	7,447,725	.....	712,400	10,327,408	703,200	.....	801,384
	1900	218	14,597,255	5,464,919	.....	166,400	7,874,776	412,800	.....	678,360
Nebraska.....	1905	628	123,555,618	63,349,206	499,200	2,239,120	44,815,680	4,793,328	.....	7,859,084
	1900	538	85,959,730	43,131,562	187,200	5,512,832	33,818,148	3,071,220	11,800	226,968
Kansas.....	1905	722	113,107,191	51,777,069	566,592	4,044,768	52,787,592	3,833,100	53,400	44,670
	1900	684	75,387,961	34,878,112	124,800	2,084,160	33,982,364	3,852,600	87,200	378,725
South Central division.....	1905	2,773	557,989,768	337,801,576	561,600	32,760,520	166,773,152	8,550,120	7,145,084	4,397,716
	1900	2,178	449,933,789	242,239,695	998,712	29,626,480	159,285,932	7,753,320	6,214,600	3,815,050
Kentucky.....	1905	327	86,512,625	55,234,671	561,600	3,895,632	24,280,152	1,710,600	86,000	743,970
	1900	282	96,862,130	55,537,760	280,800	13,059,800	22,116,796	3,149,400	26,000	2,691,600
Tennessee.....	1905	325	115,794,002	63,843,416	.....	906,880	39,171,080	2,965,716	7,040,084	1,866,826
	1900	251	124,423,368	54,894,470	.....	800,800	59,082,348	3,241,800	6,163,600	240,350
Alabama.....	1905	203	46,052,606	33,999,098	.....	393,432	11,104,236	141,840	.....	414,000
	1900	175	25,758,633	16,809,285	109,200	451,360	8,072,688	81,600	.....	234,500
Mississippi.....	1905	203	17,050,151	7,630,095	.....	421,200	8,730,956	92,700	.....	175,200
	1900	178	13,398,752	5,407,396	78,312	112,320	7,420,504	79,320	.....	300,900
Louisiana.....	1905	189	62,011,705	50,484,325	.....	1,964,040	8,993,348	194,592	4,000	371,400
	1900	160	49,348,430	38,110,670	374,400	3,400,592	7,146,568	177,000	.....	139,200
Arkansas.....	1905	284	27,846,192	13,767,576	.....	644,800	12,798,136	543,960	1,000	90,720
	1900	236	25,077,996	13,723,500	156,000	1,173,640	9,754,056	226,800	20,000	24,000
Indian Territory.....	1905	167	12,201,492	6,023,800	.....	104,000	6,001,008	72,684	.....	.....
	1900	64	3,554,882	1,157,750	.....	.....	2,386,332	10,800	.....	.....
Oklahoma.....	1905	278	33,474,760	19,558,212	.....	728,000	12,303,668	284,880	.....	600,000
	1900	110	10,698,566	5,356,010	.....	83,200	5,197,556	49,800	.....	12,000
Texas.....	1905	797	157,046,235	87,260,383	.....	23,702,536	43,390,568	2,543,148	14,000	135,600
	1900	722	100,811,006	51,242,854	.....	10,544,768	38,109,084	736,800	5,000	172,500
Western division.....	1905	2,164	599,287,525	469,662,757	811,356	22,255,480	91,267,956	13,540,296	108,400	1,641,280
	1900	1,652	395,676,854	302,909,138	645,840	9,920,768	75,157,056	4,970,352	508,000	1,565,700
Montana.....	1905	96	25,571,391	20,138,115	.....	1,164,800	3,924,076	92,400	.....	252,000
	1900	89	19,012,404	14,701,276	.....	975,520	3,229,668	77,940	28,000	.....
Idaho.....	1905	92	8,660,450	4,679,470	140,400	1,138,800	2,665,780	24,000	.....	12,000
	1900	72	4,170,980	1,752,300	.....	483,080	1,887,600	18,000	.....	30,000
Wyoming.....	1905	49	4,697,496	2,274,968	.....	798,408	1,459,120	165,000	.....	.....
	1900	42	2,446,644	1,095,300	78,000	102,440	1,086,904	84,000	.....	.....
Colorado.....	1905	367	97,427,006	77,073,286	62,556	509,600	15,300,584	4,185,780	.....	295,200
	1900	248	71,702,076	55,670,812	78,000	208,000	14,842,100	875,364	5,000	22,800
New Mexico.....	1905	59	4,621,155	2,600,175	.....	.....	2,020,980	.....	.....	.....
	1900	42	3,020,460	1,195,660	.....	.....	1,300,000	6,000	3,200	515,600
Arizona.....	1905	56	9,150,084	7,531,100	.....	.....	1,574,872	44,112	.....	.....
	1900	43	5,161,096	3,994,240	.....	.....	1,164,384	2,472	.....	.....
Utah.....	1905	85	23,435,221	15,014,629	249,600	4,019,808	3,418,584	360,000	600	372,000
	1900	72	14,304,587	8,370,995	312,000	3,185,520	1,873,872	165,600	600	396,000
Nevada.....	1905	31	2,885,910	2,169,090	.....	122,200	594,620	.....	.....	.....
	1900	35	2,395,582	1,635,738	24,960	182,000	546,884	6,000	.....	.....
Washington.....	1905	307	87,259,499	65,182,923	.....	8,924,344	11,327,940	1,421,892	.....	402,400
	1900	199	38,239,106	28,303,410	78,000	816,400	8,423,480	497,016	21,200	99,600
Oregon.....	1905	213	45,233,578	32,303,118	.....	2,842,320	8,985,340	976,800	.....	126,000
	1900	188	29,434,167	18,229,299	.....	1,540,240	8,658,572	900,456	.....	105,600
California.....	1905	809	290,345,735	240,695,883	358,800	2,735,200	39,996,060	6,270,312	107,800	181,680
	1900	622	205,789,752	167,960,108	74,880	2,427,568	32,143,592	2,337,504	450,000	396,100

TABLE 78.—NEWSPAPERS AND PERIODICALS—AGGREGATE CIRCULATION PER ISSUE, CLASSIFIED ACCORD-

	STATE OR TERRITORY.	All classes.	News, politics, and family reading.	Religious.	Agricultural, horticultural, dairying, stock raising, etc.	Commerce, finance, insur- ance, railroad, etc.	Trade journals generally.
1	Continental United States.....	139,939,229	43,285,399	22,383,631	8,106,275	2,470,832	3,428,596
2	North Atlantic division.....	75,034,744	15,744,908	9,653,954	2,140,932	1,110,890	1,554,621
3	New England.....	16,351,496	3,076,101	1,114,658	159,565	146,700	136,933
4	Maine.....	6,935,104	281,588	2,050	71,300	10,000	.....
5	New Hampshire.....	265,224	199,224	4,500	.....	.....	.....
6	Vermont.....	174,445	143,495	2,000	12,000	2,000	.....
7	Massachusetts.....	8,188,769	1,803,828	1,088,170	68,265	72,500	133,683
8	Rhode Island.....	230,475	195,737	15,938	.....	4,950	2,600
9	Connecticut.....	557,479	452,229	2,000	8,000	57,250	650
10	Southern North Atlantic.....	58,683,248	12,668,807	8,539,296	1,981,367	964,190	1,417,688
11	New York.....	39,840,329	6,451,642	1,507,840	734,155	870,625	1,089,057
12	New Jersey.....	1,074,822	673,515	27,167	12,900	5,460	5,950
13	Pennsylvania.....	17,768,097	5,543,650	7,004,289	1,234,312	88,105	342,681
14	South Atlantic division.....	4,458,119	2,565,478	808,326	208,330	46,493	172,029
15	Delaware.....	77,977	66,727	2,000	3,600	650	.....
16	Maryland.....	693,867	490,551	53,830	12,567	3,000	25,629
17	District of Columbia.....	746,453	174,862	32,200	12,000	4,900	103,800
18	Virginia.....	822,666	310,825	424,198	27,900	28,993	.....
19	West Virginia.....	319,744	296,624	7,600	1,000	.....	1,000
20	North Carolina.....	604,603	318,331	191,250	46,822	.....	23,200
21	South Carolina.....	216,947	161,334	38,863	7,650	.....	.....
22	Georgia.....	782,681	586,868	39,185	89,891	8,950	16,000
23	Florida.....	193,181	159,356	19,200	6,900	.....	2,400
24	North Central division.....	48,605,676	18,651,995	9,003,618	4,993,286	1,035,930	1,540,492
25	Ohio.....	8,815,754	2,868,761	3,933,299	551,481	46,174	190,160
26	Indiana.....	3,038,793	1,197,983	165,600	913,254	14,700	116,741
27	Illinois.....	15,237,805	4,432,550	3,684,637	757,201	817,188	674,893
28	Michigan.....	2,906,711	1,141,962	96,230	92,428	4,700	79,755
29	Wisconsin.....	1,953,860	1,021,682	152,280	200,972	6,900	54,500
30	Minnesota.....	2,613,117	1,329,151	103,960	412,000	24,650	101,657
31	Iowa.....	2,614,097	1,374,091	102,325	469,675	16,100	29,494
32	Missouri.....	7,247,505	2,975,459	729,068	1,018,237	74,500	220,342
33	North Dakota.....	236,175	201,245	.....	5,250	.....	.....
34	South Dakota.....	318,998	248,057	.....	33,191	2,000	.....
35	Nebraska.....	1,768,874	1,084,136	28,879	250,647	27,070	33,953
36	Kansas.....	1,553,987	776,918	7,340	288,950	1,950	38,997
37	South Central division.....	7,284,404	3,512,812	2,675,679	514,391	52,310	88,574
38	Kentucky.....	559,320	471,475	181,300	143,900	12,150	36,750
39	Tennessee.....	3,033,760	521,412	2,271,396	119,700	27,000	16,774
40	Alabama.....	347,890	299,320	3,750	5,620	.....	4,000
41	Mississippi.....	209,421	179,125	19,746	4,000	.....	.....
42	Louisiana.....	358,150	297,237	28,399	11,114	1,500	9,900
43	Arkansas.....	341,982	266,689	29,713	14,500	.....	.....
44	Indian Territory.....	140,781	128,581	5,700	2,000	.....	.....
45	Oklahoma.....	349,573	277,203	11,450	43,305	1,380	1,600
46	Texas.....	1,543,527	1,071,770	124,225	170,252	10,280	19,550
47	Western division.....	4,556,286	2,810,206	242,054	249,336	225,209	72,880
48	Montana.....	164,374	141,427	4,500	10,750	.....	.....
49	Idaho.....	79,333	76,133	.....	500	.....	.....
50	Wyoming.....	56,423	40,973	.....	.....	.....	.....
51	Colorado.....	879,764	489,324	23,400	66,385	65,405	4,400
52	New Mexico.....	46,840	43,190	800	300	.....	850
53	Arizona.....	66,366	52,690	.....	.....	.....	.....
54	Utah.....	195,785	143,555	35,900	6,100	580	.....
55	Nevada.....	19,540	19,540	.....	.....	.....	.....
56	Washington.....	628,282	377,554	15,884	56,000	100,787	14,700
57	Oregon.....	380,289	237,439	29,300	25,250	3,700	4,500
58	California.....	2,049,290	1,188,381	132,270	84,051	54,737	48,430

ING TO CHARACTER OF PUBLICATIONS, BY STATES, TERRITORIES, AND GEOGRAPHIC DIVISIONS: 1905.

General literature, including monthly and quarterly magazines.	Medicine and surgery.	Law.	Science and mechanics.	Fraternal organizations.	Education and history.	Society, art, music, fashion, etc.	College and school periodicals.	Miscellaneous.	
30,615,577	1,054,948	194,035	525,523	5,356,427	2,119,797	15,289,431	248,240	4,860,518	1
23,728,584	460,962	98,890	287,965	1,478,625	516,102	15,078,426	94,109	3,085,776	2
9,177,723	13,650	2,500	14,050	573,700	119,200	1,440,716	48,675	327,325	3
6,516,341	2,500			11,600	700	2,450	20,750	15,825	4
27,000				33,000			1,500		5
7,400				6,900			650		6
2,622,132	5,200	2,000	12,450	515,650	118,500	1,434,016	10,875	301,500	7
				4,550		250	3,450	3,000	8
4,850	5,950	500	1,600	2,000		4,000	11,450	7,000	9
14,550,861	447,312	96,390	273,915	904,925	396,902	13,637,710	45,434	2,758,451	10
12,379,715	225,587	84,230	236,265	688,205	380,902	13,315,990	24,109	1,872,007	11
238,918		550	24,000	62,262	250	5,000	4,975	13,875	12
1,932,228	221,725	11,610	13,650	154,458	15,750	316,720	16,350	872,569	13
15,000	27,675	3,100	10,550	324,475	68,885	16,010	10,626	181,142	14
				4,500				500	15
2,000	6,400		1,800	71,400	2,590	4,300	5,000	14,800	16
		600	8,750	211,500	52,675	5,460	3,476	136,230	17
2,000	5,750	900		8,050	9,200		350	4,500	18
2,000		600		5,100	1,220		600	4,000	19
	9,000			9,000	500		1,000	5,500	20
				2,600	1,000			5,500	21
9,000	6,525	1,000		9,500		6,250	200	9,312	22
				2,825	1,700			800	23
6,472,043	504,103	81,535	195,500	3,109,471	1,460,845	163,245	114,395	1,279,218	24
517,950	98,503	17,600	6,300	429,404	31,650	13,100	15,950	95,422	25
159,600	11,600		13,500	329,890	18,000		2,900	94,425	26
2,390,073	175,635	12,725	102,800	1,201,212	207,987	88,945	31,110	600,851	27
294,300	65,442	12,300	10,000	114,560	801,262		8,750	185,022	28
260,350	18,500			152,450	21,730		8,250	56,246	29
739,978	12,975	8,900	1,150	91,600	10,000	7,000	7,725	62,371	30
356,910	5,800			168,650	27,752	2,000	31,950	29,350	31
1,734,300	113,198	28,560	1,000	172,400	9,700	48,500	2,760	119,481	32
7,500				12,880	3,000		800	5,500	33
				29,800	4,500			1,450	34
3,275	1,250	950	750	310,125	7,089	2,500	3,600	14,650	35
7,807	1,200	500		96,500	317,575	1,200	600	14,450	36
79,950	41,678	5,660	6,100	138,185	55,765	8,600	20,000	84,700	37
4,000	13,900	4,660		44,285	8,000		8,900	30,000	38
	13,528			21,900	31,300	2,200	550	8,000	39
15,000	3,300	500	4,000	1,500	2,300		5,300	3,600	40
2,300	800			800	2,000			650	41
	600	350		5,250		2,600	1,200		42
	1,500		300	19,000	4,730	500	1,550	3,500	43
1,050				2,000			800	650	44
	2,000	150		1,200	2,285			9,000	45
57,600	6,050		1,800	42,250	5,450	3,300	1,700	29,300	46
320,000	20,530	4,850	25,408	305,671	18,200	23,150	9,110	229,682	47
				4,497	3,200				48
				2,700					49
13,700				1,350			400		50
77,000	6,000	1,000	4,800	65,200	1,700		850	74,300	51
						500	500	700	52
		150		3,676					53
				3,500	4,000		500	1,500	54
									55
1,650		500		29,375	3,000	2,000	1,225	25,607	56
28,900	3,500	900		42,800			1,000	3,000	57
198,750	11,030	2,300	20,608	152,573	6,300	20,650	4,635	124,575	58

TABLE 79.—BOOK AND JOB PRINTING (INCLUDING MUSIC)—

	United States.	Alabama.	Arizona.	Arkansas.	California.	Colorado.
1 Number of establishments.....	8,389	57	4	18	351	90
2 Capital, total.....	\$145,502,655	\$388,487	\$56,300	\$263,885	\$3,981,315	\$1,158,831
3 Land.....	\$4,192,699	\$4,000	\$1,000	\$4,000	\$27,984	\$64,600
4 Buildings.....	\$8,470,064	\$6,550	\$3,000	\$11,000	\$47,400	\$79,200
5 Machinery, tools, and implements.....	\$64,774,125	\$264,119	\$19,200	\$152,181	\$2,155,986	\$553,375
6 Cash and sundries.....	\$68,065,767	\$113,818	\$33,100	\$96,704	\$1,749,945	\$461,656
7 Proprietors and firm members.....	8,914	70	2	28	371	82
8 Salaried officials, clerks, etc.:.....						
9 Total number.....	16,188	33	4	13	419	85
10 Total salaries.....	\$15,908,871	\$30,745	\$2,700	\$13,961	\$423,941	\$108,507
11 Officers of corporations—						
12 Number.....	1,942	12	1	72	9	9
13 Salaries.....	\$4,073,592	\$13,505	\$1,800	\$142,146	\$12,370	\$12,370
14 General superintendents, managers, clerks, etc.—						
15 Total number.....	14,246	26	4	12	347	76
16 Total salaries.....	\$11,835,279	\$17,240	\$2,700	\$12,161	\$281,795	\$96,137
17 Men—						
18 Number.....	10,146	21	4	10	258	65
19 Salaries.....	\$9,923,496	\$14,371	\$2,700	\$11,145	\$244,150	\$91,159
20 Women—						
21 Number.....	4,100	5	2	89	11	11
22 Salaries.....	\$1,911,783	\$2,869	\$1,016	\$37,645	\$4,978	\$4,978
23 Wage-earners, including pieceworkers, and total wages:						
24 Greatest number employed at any one time during the year.....	107,363	436	42	203	3,186	967
25 Least number employed at any one time during the year.....	75,535	340	35	117	2,261	721
26 Average number.....	88,323	373	34	147	2,541	833
27 Total wages.....	\$49,061,030	\$190,126	\$24,588	\$92,722	\$1,737,095	\$539,770
28 Men 16 years and over—						
29 Average number.....	65,748	268	32	107	1,884	640
30 Wages.....	\$41,833,749	\$164,967	\$23,236	\$76,884	\$1,471,988	\$474,706
31 Women 16 years and over—						
32 Average number.....	20,086	72	2	36	523	142
33 Wages.....	\$6,755,382	\$18,872	\$1,352	\$14,876	\$230,561	\$51,829
34 Children under 16 years—						
35 Average number.....	2,489	33	4	134	51	51
36 Wages.....	\$471,899	\$6,287	\$962	\$34,546	\$13,235	\$13,235
37 Average number of wage-earners, including pieceworkers, employed during each month:						
38 Men 16 years and over—						
39 January.....	66,070	271	32	105	1,868	621
40 February.....	65,976	266	32	109	1,861	594
41 March.....	66,195	270	33	108	1,880	614
42 April.....	66,035	270	33	104	1,888	626
43 May.....	65,423	268	33	111	1,875	638
44 June.....	63,799	265	33	109	1,833	640
45 July.....	62,366	252	30	104	1,823	627
46 August.....	62,374	254	30	102	1,849	645
47 September.....	65,151	263	30	107	1,883	660
48 October.....	67,885	280	30	106	1,924	671
49 November.....	68,764	287	34	112	1,990	673
50 December.....	68,938	270	34	107	1,934	671
51 Women 16 years and over—						
52 January.....	20,013	76	2	35	527	141
53 February.....	19,780	76	2	34	502	133
54 March.....	20,112	73	2	34	512	140
55 April.....	19,878	70	2	38	514	137
56 May.....	19,648	69	2	44	522	144
57 June.....	19,504	69	2	40	507	143
58 July.....	18,938	68	2	34	524	138
59 August.....	19,084	69	2	31	514	140
60 September.....	20,155	68	2	31	508	146
61 October.....	21,060	75	2	34	530	148
62 November.....	21,466	74	2	40	553	148
63 December.....	21,394	77	2	37	563	146
64 Children under 16 years—						
65 January.....	2,427	27	3	135	51	51
66 February.....	2,450	32	3	136	50	50
67 March.....	2,479	33	3	139	50	50
68 April.....	2,414	34	3	134	50	50
69 May.....	2,426	34	4	129	50	50
70 June.....	2,420	33	4	133	48	48
71 July.....	2,466	33	4	132	50	50
72 August.....	2,525	34	4	134	50	50
73 September.....	2,540	35	5	131	53	53
74 October.....	2,555	33	5	135	54	54
75 November.....	2,585	33	5	135	53	53
76 December.....	2,581	35	5	135	53	53
77 Typecasting and typesetting machines used, number.....	1,387	3	4	43	23	23
78 Operators of typecasting or typesetting machines (included in wage-earners).....	1,992	6	5	80	27	27
79 Hand compositors (included in wage-earners).....	29,819	165	17	56	987	260
80 Miscellaneous expenses, total.....	\$34,831,172	\$45,333	\$2,487	\$31,075	\$640,230	\$150,850
81 Rent of works.....	\$4,461,775	\$14,329	\$1,460	\$7,276	\$147,240	\$40,997
82 Taxes.....	\$485,700	\$2,857	\$477	\$1,141	\$15,348	\$7,482
83 Rent of offices, interest, insurance, and all other sundry expenses not hitherto included.....	\$17,738,526	\$24,114	\$550	\$22,234	\$236,792	\$75,471
84 Contract work.....	\$12,145,171	\$4,033	.....	\$424	\$240,850	\$20,900
85 Materials used, aggregate cost.....	\$53,116,330	\$164,852	.....	\$78,865	\$1,602,741	\$469,178
86 Paper, total cost.....	\$39,993,973	\$136,389	.....	\$62,663	\$1,258,705	\$345,781
87 For books and pamphlets and music.....	\$5,974,273	\$5,060	.....	.....	\$21,750	\$4,500
88 For job printing.....	\$34,019,700	\$131,329	.....	.....	\$1,236,955	\$341,281
89 Ink.....	\$2,136,443	\$4,345	.....	.....	\$69,274	\$20,425
90 Fuel.....	\$558,995	\$1,394	.....	.....	\$671	\$3,448
91 Rent of power and heat.....	\$1,344,405	\$6,494	.....	.....	\$5,124	\$12,614
92 Mill supplies.....	\$263,066	\$546	.....	.....	\$623	\$2,449
93 All other materials.....	\$8,521,397	\$13,151	.....	.....	\$7,306	\$82,365
94 Freight.....	\$298,051	\$2,533	.....	.....	\$705	\$2,096
95 Products, aggregate value.....	\$186,759,503	\$539,046	.....	.....	\$5,764,000	\$1,613,865
96 Book and pamphlet publications.....	\$38,614,551	\$10,400	.....	.....	\$762,633	\$50,000
97 Sheet music and books of music.....	\$4,544,724	.....	.....	.....	.....	.....
98 Job printing.....	\$116,642,845	\$476,042	.....	.....	.....	.....
99 Bookbinding.....	\$8,146,175	\$22,500	.....	.....	.....	.....
Blank books.....	\$5,534,847	\$6,000	.....	.....	.....	.....
Electrotyping, engraving, etc.....	\$3,182,851	\$10,286
All other products.....	\$10,093,510	\$13,818

PRINTING AND PUBLISHING.

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DETAILED SUMMARY, BY STATES AND TERRITORIES: 1905.

Connecticut.	Delaware.	District of Columbia.	Florida.	Georgia.	Idaho.	Illinois.	Indian Territory.	Indiana.	Iowa.	Kansas.	
177	13	76	30	75	6	899	10	181	135	82	1
\$1,951,662	\$162,531	\$991,322	\$217,596	\$959,268	\$16,450	\$18,140,851	\$20,960	\$3,260,088	\$1,287,801	\$697,065	2
\$128,250	\$17,200	\$123,250	\$5,600	\$25,200		\$392,088	\$2,600	\$66,150	\$30,359	\$6,150	3
\$168,762	\$18,478	\$68,000	\$10,600	\$21,330		\$1,257,352	\$400	\$247,723	\$74,435	\$22,664	4
\$917,710	\$87,376	\$466,836	\$148,238	\$351,934	\$11,150	\$8,667,253	\$15,200	\$1,615,707	\$669,860	\$389,411	5
\$736,940	\$39,477	\$333,236	\$53,158	\$360,804	\$5,300	\$7,824,158	\$2,760	\$1,330,508	\$513,147	\$278,840	6
170	10	79	35	78	1	831	11	197	145	145	7
142	10	140	27	98		2,565		324	165	64	8
\$143,379	\$6,298	\$146,330	\$24,486	\$90,022	\$900	\$2,687,893		\$206,985	\$137,464	\$60,318	9
35	1	8	1	18		356		48	28	7	10
\$56,510	\$2,000	\$15,874	\$1,200	\$21,470		\$706,088		\$81,170	\$32,414	\$12,192	11
107	9	132	26	80	1	2,209		276	137	57	12
\$86,869	\$4,298	\$130,456	\$23,286	\$68,552	\$900	\$1,981,805		\$215,815	\$105,050	\$48,126	13
67	3	107	21	61		1,527		216	104	47	14
\$67,923	\$1,442	\$116,027	\$21,326	\$61,896		\$1,634,916		\$188,560	\$88,950	\$44,772	15
40	6	25	5	19	1	682		60	33	10	16
\$18,946	\$2,856	\$14,429	\$1,960	\$6,656	\$900	\$346,889		\$27,255	\$16,100	\$3,354	17
1,711	113	944	210	1,005	13	15,893	15	3,049	1,112	592	18
1,139	86	435	144	722	9	10,878	7	2,082	737	407	19
1,316	103	613	154	849	9	12,973	8	2,404	848	453	20
\$696,249	\$48,711	\$344,465	\$70,292	\$337,673	\$6,060	\$7,504,973	\$4,774	\$1,244,752	\$410,814	\$205,175	21
931	58	488	114	621	8	9,495	6	1,663	602	333	22
\$582,493	\$39,586	\$303,794	\$61,514	\$291,462	\$5,760	\$6,374,183	\$3,630	\$966,262	\$344,227	\$174,121	23
337	29	115	28	198	1	3,210	1	694	201	103	24
\$105,683	\$7,387	\$39,250	\$7,234	\$41,762	\$300	\$1,074,437	\$780	\$268,856	\$57,267	\$28,393	25
48	8	10	12	30		268	1	47	45	17	26
\$8,073	\$1,738	\$1,421	\$1,544	\$4,449		\$56,353	\$364	\$9,634	\$9,320	\$2,661	27
939	54	503	120	627	6	9,400	12	1,775	622	318	28
934	54	502	112	625	6	9,557	8	1,071	615	325	29
929	59	514	115	625	7	9,558	6	1,578	600	315	30
937	61	506	117	610	7	9,448	4	1,656	610	330	31
939	61	517	110	596	7	9,628	3	1,639	585	323	32
924	58	447	105	566	7	9,149	4	1,629	589	332	33
891	58	410	103	566	7	8,980	3	1,711	570	313	34
891	55	408	112	596	7	9,175	5	1,487	565	318	35
930	58	422	119	652	9	9,601	7	1,542	580	346	36
940	58	560	110	673	11	9,898	6	1,794	605	355	37
950	60	534	116	662	11	9,795	6	1,741	630	360	38
969	60	533	129	654	11	9,751	8	1,733	653	361	39
325	30	130	31	197		3,129	1	807	222	93	40
326	30	125	29	197		3,287	1	624	215	90	41
323	30	125	29	197		3,413	1	708	204	90	42
309	30	121	30	191		3,327	1	759	186	99	43
328	30	120	26	185		3,138	1	760	193	95	44
327	30	100	26	183		3,043	1	612	184	103	45
326	26	89	24	194		2,925	1	650	181	102	46
321	26	88	28	214		3,089	1	654	184	108	47
337	26	99	27	204	3	3,315	1	730	192	109	48
363	30	123	27	195	3	3,383	1	594	199	108	49
373	30	125	29	208	3	3,301	1	776	209	122	50
386	30	135	30	211	3	3,170	1	654	253	117	51
43	8	10	13	37		257	1	53	41	17	52
42	8	10	13	35		278	1	44	40	17	53
44	8	10	13	30		279	1	47	45	17	54
42	8	10	11	26		267	1	50	46	17	55
50	8	10	11	23		253	1	47	52	16	56
52	8	10	11	23		258	1	42	44	18	57
49	8	10	11	29		278	1	44	42	17	58
50	8	10	12	29		290	1	46	43	17	59
50	8	10	12	23		269	1	47	44	16	60
51	8	10	12	34		261	1	47	43	18	61
50	8	10	12	36		265	1	48	48	17	62
53	8	10	13	35		261	1	49	48	17	63
18	1	16	3	15		145		29	11	6	64
19	1	22	4	24		253		44	16	7	65
565	42	278	72	289	7	3,909	5	662	382	162	66
\$229,905	\$18,759	\$604,385	\$17,575	\$119,031	\$2,686	\$5,968,176	\$2,164	\$411,653	\$201,378	\$92,979	67
\$53,927	\$2,645	\$33,518	\$9,216	\$32,656	\$1,284	\$797,339	\$1,122	\$63,639	\$41,252	\$21,723	68
\$7,922	\$645	\$3,339	\$998	\$7,898	\$166	\$72,241	\$62	\$14,101	\$6,832	\$2,210	69
\$130,119	\$11,724	\$497,075	\$7,236	\$61,616	\$1,236	\$2,999,440	\$980	\$310,354	\$127,207	\$63,071	70
337,997	\$3,745	\$70,453	\$125	\$16,861		\$2,099,156		\$23,559	\$26,087	\$4,975	71
\$678,860	\$44,808	\$234,004	\$75,887	\$416,637	\$5,225	\$8,485,187	\$5,413	\$1,426,831	\$552,883	\$254,709	72
\$543,809	\$34,877	\$204,582	\$63,935	\$335,224	\$4,755	\$8,168,391	\$4,805	\$989,896	\$445,007	\$201,316	73
\$18,721	\$8,065	\$19,575	\$10,525	\$10,525		\$1,279,724	\$50	\$129,317	\$18,801	\$4,032	74
\$525,088	\$26,812	\$185,007	\$63,365	\$324,699	\$4,755	\$4,888,667	\$4,755	\$860,579	\$426,206	\$197,234	75
\$16,658	\$1,473	\$13,099	\$2,377	\$13,099	\$125	\$347,935	\$141	\$14,574	\$14,496	\$6,893	76
\$9,374	\$907	\$3,566	\$857	\$3,182		\$73,088	\$102	\$26,561	\$8,864	\$3,367	77
\$20,970	\$1,574	\$8,934	\$2,262	\$10,889	\$255	\$210,499	\$162	\$21,443	\$17,035	\$8,479	78
\$2,551	\$387	\$1,027	\$298	\$2,120	\$30	\$47,965	\$49	\$11,249	\$11,814	\$806	79
\$76,775	\$3,745	\$6,624	\$4,857	\$42,194	\$60	\$1,615,361	\$154	\$317,910	\$59,803	\$25,034	80
\$8,723	\$1,845	\$591	\$1,301	\$9,429		\$21,948		\$16,198	\$5,864	\$8,814	81
\$2,175,102	\$152,274	\$1,740,377	\$266,560	\$1,179,656	\$21,200	\$28,873,101	\$19,265	\$3,889,657	\$1,632,151	\$809,488	82
\$116,306	\$46,320	\$891,676	\$8,550	\$48,250		\$6,611,033	\$250	\$562,368	\$85,562	\$10,462	83
						\$588,097			\$7,943		84
\$1,812,373	\$96,036	\$812,385	\$199,788	\$914,118	\$21,200	\$16,312,049	\$18,195	\$2,509,467	\$1,311,902	\$634,516	85
\$88,227	\$9,918	\$11,021	\$33,176	\$64,575		\$1,783,239		\$356,575	\$42,787	\$23,974	86
\$57,181		\$2,900	\$25,046	\$31,323		\$800,626	\$700	\$219,739	\$90,538	\$76,648	87
\$15,851		\$6,175		\$5,000		\$615,159		\$41,533	\$12,054	\$4,662	88
\$86,164		\$16,210		\$116,390		\$2,162,898	\$120	\$199,975	\$81,365	\$59,226	89

MANUFACTURES.

TABLE 79.—BOOK AND JOB PRINTING (INCLUDING MUSIC)—

		United States.	Alabama.	Arizona.	Arkansas.	California.	Colorado.
90	Power:						
91	Number of establishments reporting.....	6,094	35	4	14	279	73
	Total horsepower.....	61,239	182	9	98	1,678	561
	Owned—						
	Engines—						
	Steam—						
92	Number.....	409	1			2	3
93	Horsepower.....	15,565	20			170	100
	Gas and gasoline—						
94	Number.....	1,001	5			12	1
95	Horsepower.....	6,136	19			81	2
	Water wheels—						
96	Number.....	7					
97	Horsepower.....	91					
	Water motors—						
98	Number.....	116	1			3	1
99	Horsepower.....	275	1			5	2
	Electric motors—						
100	Number.....	1,386					46
101	Horsepower.....	4,848					92
102	Other power, horsepower.....	3					
	Rented—						
	Electric motors—						
103	Number.....	11,144	60	7	27	625	174
104	Horsepower.....	30,241	142	5	98	1,407	365
105	Other kind, horsepower.....	4,080				15	
106	Furnished to other establishments, horsepower.....	866					25

DETAILED SUMMARY, BY STATES AND TERRITORIES: 1905—Continued.

Connecticut.	Delaware.	District of Columbia.	Florida.	Georgia.	Idaho.	Illinois.	Indian Ter- ritory.	Indiana.	Iowa.	Kansas.	
135	12	52	19	59	5	628	4	146	115	60	90
904	58	350	110	431	6	9,447	6	2,278	741	302	91
19	1	4		5		22		9	5	5	92
261	15	75		176		1,988		724	118	37	93
17	2	6	5	7		60	1	34	19	18	94
100	5	46	42	21		283	2	304	98	77	95
1						1					96
12						50					97
			1			3		4	3	2	98
			2			11		8	7	4	99
5						264		134	2		100
12						1,036		449	16		101
											102
164	11	91	17	64	5	2,172	8	328	160	102	103
464	38	229	66	231	6	5,328	4	719	495	184	104
115						751		14	7		105
29		5				40		4	5	1	106

TABLE 79.—BOOK AND JOB PRINTING (INCLUDING MUSIC)—

	Kentucky.	Louisiana.	Maine.	Maryland.	Massachu- setts.	Michigan.
1 Number of establishments.....	100	62	91	142	601	247
2 Capital, total.....	\$1,615,954	\$733,939	\$551,984	\$1,568,540	\$10,758,744	\$3,090,103
3 Land.....	\$102,620	\$21,150	\$15,380	\$30,480	\$398,778	\$101,096
4 Buildings.....	\$114,800	\$25,500	\$65,125	\$77,370	\$701,316	\$172,434
5 Machinery, tools and implements.....	\$878,320	\$477,511	\$295,373	\$893,624	\$4,698,803	\$1,496,567
6 Cash and sundries.....	\$520,214	\$209,778	\$176,106	\$567,066	\$4,959,847	\$1,320,006
7 Proprietors and firm members.....	94	52	95	156	639	301
8 Salaried officials, clerks, etc.:.....						
9 Total number.....	216	98	50	216	1,154	359
10 Total salaries.....	\$171,019	\$92,925	\$36,072	\$181,936	\$1,112,185	\$312,627
11 Officers of corporations—						
12 Number.....	29	27	9	37	94	51
13 Salaries.....	\$56,771	\$41,580	\$9,976	\$60,362	\$215,463	\$86,462
14 General superintendents, managers, clerks, etc.—						
15 Total number.....	187	71	41	179	1,060	308
16 Total salaries.....	\$114,248	\$51,345	\$26,096	\$121,574	\$896,722	\$226,165
17 Men—						
18 Number.....	157	63	32	135	682	228
19 Salaries.....	\$101,538	\$47,737	\$23,518	\$104,705	\$706,628	\$189,629
20 Women—						
21 Number.....	30	8	9	44	378	80
22 Salaries.....	\$12,710	\$3,608	\$2,578	\$16,869	\$190,094	\$36,636
23 Wage-earners, including pieceworkers, and total wages:						
24 Greatest number employed at any one time during the year.....	1,673	794	519	1,827	7,487	2,814
25 Least number employed at any one time during the year.....	1,136	532	361	1,165	5,114	1,884
26 Average number.....	1,335	643	425	1,384	6,111	2,264
27 Total wages.....	\$631,844	\$344,858	\$194,858	\$603,507	\$3,431,269	\$1,090,809
28 Men 16 years and over—						
29 Average number.....	966	524	294	1,077	4,270	1,631
30 Wages.....	\$534,978	\$317,726	\$155,931	\$529,298	\$2,707,963	\$915,858
31 Women 16 years and over—						
32 Average number.....	309	83	127	236	1,729	578
33 Wages.....	\$86,195	\$21,455	\$38,178	\$62,985	\$702,032	\$165,754
34 Children under 16 years—						
35 Average number.....	80	36	4	71	112	55
36 Wages.....	\$10,671	\$5,677	\$749	\$11,224	\$21,274	\$9,197
37 Average number of wage-earners, including pieceworkers, employed dur- ing each month:						
38 Men 16 years and over—						
39 January.....	999	506	305	955	4,265	1,627
40 February.....	989	514	306	953	4,221	1,639
41 March.....	992	528	308	1,062	4,342	1,645
42 April.....	958	516	295	1,093	4,337	1,645
43 May.....	908	510	296	1,090	4,315	1,683
44 June.....	884	489	299	1,090	4,227	1,671
45 July.....	927	489	275	1,064	4,094	1,550
46 August.....	919	497	275	1,076	4,037	1,584
47 September.....	967	520	279	1,111	4,169	1,617
48 October.....	1,000	567	286	1,121	4,332	1,630
49 November.....	1,030	595	300	1,157	4,441	1,625
50 December.....	1,019	557	304	1,152	4,460	1,656
51 Women 16 years and over—						
52 January.....	324	84	123	222	1,657	578
53 February.....	316	86	137	217	1,620	568
54 March.....	317	86	147	231	1,738	588
55 April.....	301	85	131	236	1,786	564
56 May.....	292	84	135	242	1,768	565
57 June.....	280	71	130	233	1,855	566
58 July.....	276	71	118	249	1,083	542
59 August.....	293	72	117	234	1,594	562
60 September.....	309	88	117	248	1,627	597
61 October.....	340	89	121	235	1,804	606
62 November.....	334	90	121	251	1,794	595
63 December.....	326	90	127	234	1,822	605
64 Children under 16 years—						
65 January.....	61	36	5	68	102	56
66 February.....	61	36	3	61	102	54
67 March.....	62	36	5	68	107	57
68 April.....	60	35	3	70	104	54
69 May.....	59	35	5	69	104	58
70 June.....	59	37	3	72	109	56
71 July.....	60	37	5	75	114	56
72 August.....	60	37	3	80	119	56
73 September.....	60	37	5	73	121	54
74 October.....	60	37	3	73	122	53
75 November.....	59	38	5	72	122	52
76 December.....	59	31	3	71	118	54
77 Typecasting and typesetting machines used, number.....	18	10	1	28	45	22
78 Operators of typecasting or typesetting machines (included in wage- earners).....	25	23	2	32	58	33
79 Hand compositors (included in wage-earners).....	414	198	173	494	2,428	652
80 Miscellaneous expenses, total.....	\$172,210	\$82,262	\$59,604	\$197,428	\$2,643,420	\$580,142
81 Rent of works.....	\$38,868	\$28,938	\$11,570	\$56,614	\$287,299	\$89,322
82 Taxes.....	\$8,602	\$1,998	\$2,557	\$4,965	\$54,129	\$21,512
83 Rent of offices, interest, insurance, and all other sundry expenses not hitherto included.....	\$116,999	\$44,044	\$28,009	\$119,163	\$1,132,974	\$391,639
84 Contract work.....	\$7,741	\$7,282	\$17,468	\$16,686	\$1,168,718	\$77,669
85 Materials used, aggregate cost.....	\$625,027	\$350,875	\$205,178	\$808,269	\$3,368,502	\$1,318,681
86 Paper, total cost.....	\$462,675	\$249,643	\$127,606	\$655,618	\$2,454,997	\$1,012,383
87 For books and pamphlets and music.....	\$7,110		\$21,975	\$27,280	\$557,954	\$111,388
88 For job printing.....	\$455,565	\$249,643	\$105,631	\$628,338	\$1,897,043	\$900,995
89 Ink.....	\$23,239	\$14,206	\$5,193	\$33,592	\$135,856	\$53,070
90 Fuel.....	\$5,674	\$3,195	\$2,967	\$14,787	\$33,347	\$19,586
91 Rent of power and heat.....	\$21,161	\$10,743	\$5,245	\$11,628	\$109,147	\$35,282
92 Mill supplies.....	\$3,493	\$2,082	\$788	\$2,397	\$11,462	\$4,126
93 All other materials.....	\$98,220	\$69,224	\$62,720	\$86,907	\$610,537	\$181,238
94 Freight.....	\$10,565	\$1,782	\$3,340	\$13,156	\$12,996	
95 Products, aggregate value.....	\$1,896,362	\$1,081,081	\$627,770	\$2,273,757	\$12,880,511	\$3,962,967
96 Book and pamphlet publications.....	\$42,903	\$11,000	\$76,905	\$56,500	\$3,567,477	\$341,386
97 Sheet music and books of music.....					\$439,338	
98 Job printing.....	\$1,357,553	\$824,124	\$410,246	\$1,815,899	\$7,649,169	\$2,740,812
99 Bookbinding.....	\$90,985	\$35,890	\$10,917	\$174,279	\$262,121	\$425,192
100 Blank books.....	\$110,921	\$93,173	\$1,500	\$304,003	\$210,311	
101 Electrotyping, engraving, etc.....	\$157,629	\$1,250	\$27,205	\$2,830	\$60,419	\$92,314
102 All other products.....	\$136,371	\$115,644	\$100,997	\$152,795	\$597,984	\$152,952

PRINTING AND PUBLISHING.

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DETAILED SUMMARY, BY STATES AND TERRITORIES: 1905—Continued.

Minnesota.	Mississippi.	Missouri.	Montana.	Nebraska.	New Hamp- shire.	New Jersey.	New York.	North Carolina.	North Dakota.	Ohio.	
179	21	317	9	70	55	232	1,738	55	10	532	1
\$2,489,295	\$126,135	\$6,624,829	\$83,999	\$925,729	\$211,245	\$3,759,679	\$41,571,273	\$271,311	\$106,274	\$9,188,564	2
\$49,946	\$23,850	\$137,800		\$20,500	\$4,000	\$248,435	\$1,061,081	\$5,050	\$100	\$228,432	3
\$171,257	\$12,900	\$242,100		\$47,150	\$7,350	\$823,695	\$1,935,127	\$5,800	\$400	\$871,551	4
\$1,174,246	\$62,400	\$2,831,651	\$73,795	\$487,054	\$135,430	\$1,570,518	\$16,083,946	\$197,430	\$68,100	\$4,117,684	5
\$1,093,846	\$26,985	\$3,423,278	\$30,264	\$371,025	\$65,465	\$1,117,031	\$22,491,119	\$63,031	\$37,674	\$3,970,897	6
189	28	286	9	78	60	263	1,843	60	13	562	7
535	9	811	3	79	13	250	4,350	38	16	862	8
\$330,783	\$7,764	\$944,312	\$4,800	\$83,465	\$14,017	\$224,051	\$4,566,535	\$28,711	\$16,540	\$870,583	9
57	1	141	2	15	1	21	393	7	2	150	10
\$103,814	\$500	\$318,499	\$3,000	\$21,092	\$936	\$59,595	\$1,064,415	\$6,330	\$2,000	\$277,091	11
478	8	670	1	64	12	229	3,957	31	14	712	12
\$226,969	\$7,264	\$925,813	\$1,800	\$61,773	\$13,081	\$164,456	\$3,502,120	\$22,381	\$14,540	\$593,492	13
415	5	500	1	50	7	175	2,681	26	11	509	14
\$198,378	\$5,580	\$551,952	\$1,800	\$54,304	\$10,429	\$139,378	\$2,854,362	\$20,136	\$12,972	\$514,566	15
63	3	170		14	5	54	1,276	5	3	203	10
\$28,591	\$1,684	\$73,861		\$7,469	\$2,652	\$25,078	\$647,758	\$2,245	\$1,568	\$78,926	17
2,209	78	5,839	70	766	214	2,257	25,259	330	69	6,998	18
1,491	73	4,167	51	528	136	1,515	18,181	244	61	5,194	19
1,776	73	4,824	58	645	161	1,844	21,280	268	63	5,937	20
\$996,342	\$40,401	\$2,593,682	\$42,654	\$359,054	\$80,430	\$1,024,868	\$12,885,728	\$114,771	\$42,492	\$3,000,970	21
1,263	60	3,427	42	507	116	1,345	17,073	213	50	4,281	22
\$304,485	\$36,597	\$2,156,473	\$35,374	\$318,226	\$63,751	\$858,996	\$11,416,530	\$101,224	\$37,914	\$2,519,256	23
483	6	1,194	13	123	42	433	3,966	38	12	1,526	24
\$186,919	\$2,445	\$395,896	\$6,220	\$38,000	\$16,283	\$152,885	\$1,419,650	\$11,044	\$4,370	\$458,516	25
30	7	213	3	15	3	66	241	17	1	130	26
\$4,938	\$1,356	\$41,413	\$1,060	\$2,828	\$396	\$12,987	\$49,548	\$2,503	\$208	\$23,198	27
1,251	58	3,419	46	510	121	1,306	17,381	219	49	4,308	28
1,240	58	3,447	46	518	123	1,336	17,313	219	49	4,284	29
1,265	58	3,429	40	512	123	1,321	17,313	218	48	4,306	30
1,272	58	3,393	40	515	118	1,294	17,373	212	50	4,275	31
1,249	58	3,380	42	507	109	1,313	16,890	205	51	4,202	32
1,215	58	3,361	40	502	104	1,312	16,339	204	51	4,177	33
1,202	60	3,346	40	477	103	1,306	15,896	196	51	4,116	34
1,226	61	3,360	40	475	108	1,323	15,828	197	51	4,146	35
1,280	61	3,405	41	500	111	1,377	16,824	205	51	4,276	36
1,300	62	3,461	41	520	118	1,388	17,735	223	49	4,371	37
1,316	64	3,566	44	520	124	1,437	17,939	230	50	4,443	38
1,330	64	3,557	44	528	130	1,427	18,045	228	50	4,468	39
495	7	1,167	17	132	46	354	3,925	42	12	1,586	40
466	6	1,155	17	132	47	395	3,922	42	12	1,538	41
471	6	1,118	11	132	45	371	3,937	37	12	1,536	42
482	6	1,100	11	133	34	338	3,928	38	12	1,470	43
481	6	1,129	11	123	31	367	3,905	36	12	1,440	44
445	6	1,156	11	112	31	394	3,939	34	12	1,446	45
449	5	1,146	11	100	27	425	3,794	30	12	1,363	46
443	6	1,170	11	103	29	484	3,711	33	12	1,416	47
483	6	1,236	11	113	39	529	3,923	34	12	1,500	48
526	6	1,272	11	125	54	510	4,221	40	12	1,570	49
524	6	1,312	17	134	60	560	4,151	42	12	1,682	50
533	6	1,247	17	137	61	469	4,236	48	12	1,765	51
29	7	196	11	16	3	65	252	15	1	122	52
24	7	202	3	16	3	69	245	16	1	136	53
27	7	206	3	16	3	65	225	16	1	139	54
27	7	208	3	14	3	59	235	17	1	121	55
30	7	210	3	14	3	71	236	18	1	124	56
29	7	215	3	14	3	65	236	15	1	124	57
33	7	221	3	12	2	57	233	14	1	114	58
32	7	225	3	13	2	57	247	17	1	125	59
38	7	221	3	17	3	73	236	16	1	132	60
31	7	219	3	16	3	71	244	20	1	126	61
30	7	220	3	16	3	70	239	20	1	144	62
36	7	213	3	16	4	70	254	20	1	153	63
33	1	57	1	12		23	486	8	2	85	64
54	2	88	2	15		30	634	11	3	128	65
590	30	1,625	33	224	91	594	6,676	126	23	2,140	66
\$400,984	\$8,583	\$1,382,688	\$7,622	\$183,755	\$18,723	\$441,380	\$13,403,480	\$23,356	\$17,558	\$1,714,859	67
\$83,130	\$3,507	\$199,484	\$5,176	\$30,926	\$8,301	\$54,508	\$1,267,024	\$8,836	\$5,784	\$230,042	68
\$13,149	\$770	\$19,717	\$464	\$5,148	\$889	\$19,152	\$64,329	\$2,564	\$733	\$44,937	69
\$187,148	\$4,306	\$874,583	\$1,982	\$123,481	\$9,073	\$341,547	\$6,029,095	\$11,430	\$10,366	\$1,038,277	70
\$117,557		\$288,904		\$24,200	\$460	\$26,173	\$6,043,032	\$526	\$675	\$401,603	71
\$968,864	\$39,002	\$3,079,128	\$37,535	\$387,100	\$66,337	\$1,204,391	\$12,315,243	\$118,569	\$51,151	\$3,794,404	72
\$678,817	\$32,676	\$2,306,539	\$32,792	\$321,032	\$49,282	\$969,057	\$9,082,397	\$96,956	\$42,494	\$3,025,481	73
\$87,048	\$2,200	\$164,127		\$7,200	\$9,622	\$22,635	\$2,134,792	\$7,755	\$2,170	\$348,689	74
\$591,769	\$30,476	\$2,142,412	\$32,792	\$313,832	\$39,660	\$946,422	\$6,947,605	\$89,201	\$40,324	\$2,676,792	75
\$42,022	\$856	\$93,366	\$1,166	\$11,521	\$5,034	\$56,034	\$619,632	\$3,556	\$1,508	\$156,003	76
\$7,225	\$912	\$35,840	\$83	\$5,786	\$1,302	\$24,215	\$122,712	\$2,213	\$865	\$42,412	77
\$32,924	\$1,171	\$58,641	\$1,876	\$12,902	\$3,505	\$16,195	\$347,564	\$4,664	\$1,541	\$75,967	78
\$6,895	\$319	\$11,184	\$380	\$1,265	\$328	\$4,845	\$75,160	\$658	\$55	\$14,943	79
\$197,271	\$2,831	\$554,080	\$896	\$28,232	\$9,376	\$127,178	\$2,041,282	\$9,208	\$4,640	\$450,535	80
\$3,710	\$237	\$19,478	\$342	\$6,146	\$1,023	\$6,867	\$26,496	\$1,314	\$848	\$29,063	81
\$3,406,129	\$115,817	\$9,864,352	\$118,675	\$1,272,137	\$242,969	\$3,618,254	\$52,229,011	\$391,409	\$158,206	\$11,798,271	82
\$834,930	\$10,080	\$1,155,124		\$133,400	\$45,695	\$106,154	\$15,823,372	\$42,519	\$10,890	\$1,570,111	83
\$25		\$257,317					\$2,426,635			\$271,241	84
\$2,119,538	\$91,358	\$6,450,133	\$111,557	\$1,050,087	\$166,014	\$2,751,345	\$28,188,474	\$305,183	\$108,986	\$8,576,189	85
\$181,363	\$5,996	\$330,843		\$31,800	\$21,350	\$151,700	\$1,901,745	\$29,700	\$4,360	\$309,358	86
\$46,773		\$652,755		\$15,725	\$1,500	\$7,200	\$749,133	\$10,572	\$32,000	\$623,053	87
\$17,943	\$200	\$162,905	\$6,000	\$32,995	\$7,000	\$23,061	\$899,916	\$700		\$218,261	88
\$205,557	\$8,183	\$846,275	\$1,118	\$8,130	\$1,410	\$578,794	\$2,239,716	\$2,735	\$1,970	\$230,058	89

TABLE 79.—BOOK AND JOB PRINTING (INCLUDING MUSIC)—

		Kentucky.	Louisiana.	Maine.	Maryland.	Massachu- setts.	Michigan.
90	Power:						
91	Number of establishments reporting.....	76	48	64	112	463	191
	Total horsepower.....	1,091	294	301	802	3,590	1,775
	Owned—						
	Engines—						
	Steam—						
92	Number.....	3		7	6	35	9
93	Horsepower.....	370		61	153	831	334
	Gas and gasoline—						
94	Number.....	9	11	9	31	15	35
95	Horsepower.....	26	55	24	330	271	168
	Water wheels—						
96	Number.....						
97	Horsepower.....						
	Water motors—						
98	Number.....	3		6	1	10	
99	Horsepower.....	1		20	3	26	
	Electric motors—						
100	Number.....	7			10	25	61
101	Horsepower.....	96			15	108	222
102	Other power, horsepower.....						
	Rented—						
	Electric motors—						
103	Number.....	142	102	54	162	581	319
104	Horsepower.....	594	239	189	253	1,954	932
105	Other kind, horsepower.....	1		7	39	400	69
106	Furnished to other establishments, horsepower.....				10	140	2

DETAILED SUMMARY, BY STATES AND TERRITORIES: 1905—Continued.

Minnesota.	Mississippi.	Missouri.	Montana.	Nebraska.	New Hamp- shire.	New Jersey.	New York.	North Carolina.	North Dakota.	Ohio.	
132 886	14 51	255 4,016	8 40	61 409	39 127	161 1,910	1,090 13,020	35 163	7 56	436 5,400	90 91
	2 18	28 1,460		1 15	4 17	35 1,144	77 3,347	2 17		27 1,729	92 93
3 8	4 7	25 93		11 43	2 5	29 108	217 1,200	8 39		113 783	94 95
							2 22			1 2	96 97
8 10					4 8	1 8	18 36	5 6		10 31	98 99
		295 819				93 201	221 658 3			76 785	100 101 102
510 863 5	10 26	530 1,644	22 40	125 411	33 95 2	152 433 31 25	1,894 5,923 1,831 312	33 101 8	80 56	600 1,946 124 76	103 104 105 106

TABLE 79.—BOOK AND JOB PRINTING (INCLUDING MUSIC).—

	Oklahoma.	Oregon.	Pennsylvania.	Rhode Island.	South Carolina.
1 Number of establishments.....	16	53	872	79	23
2 Capital, total.....	\$109,168	\$565,392	\$18,243,489	\$925,372	\$259,066
3 Land.....	\$1,500	\$3,050	\$585,965	\$33,550	\$5,000
4 Buildings.....	\$500	\$4,950	\$756,582	\$26,250	\$8,815
5 Machinery, tools, and implements.....	\$54,480	\$349,806	\$7,491,116	\$475,167	\$139,051
6 Cash and sundries.....	\$52,688	\$207,586	\$9,409,525	\$390,405	\$106,200
7 Proprietors and firm members.....	19	56	1,032	89	28
8 Salaried officials, clerks, etc.:.....					
9 Total number.....	6	58	1,838	125	17
10 Total salaries.....	\$6,181	\$68,010	\$1,673,277	\$137,402	\$16,310
11 Officers of corporations.....					
12 Number.....		19	136	11	4
13 Salaries.....		\$36,150	\$337,904	\$29,400	\$6,230
14 General superintendents, managers, clerks, etc.—					
15 Total number.....	6	39	1,702	114	13
16 Total salaries.....	\$6,181	\$31,860	\$1,335,373	\$108,002	\$10,080
17 Men.....					
18 Number.....	4	29	1,175	67	12
19 Salaries.....	\$4,514	\$26,280	\$1,143,852	\$84,281	\$9,560
20 Women.....					
21 Number.....	2	10	527	47	1
22 Salaries.....	\$1,667	\$5,580	\$191,521	\$23,721	\$520
23 Wage-earners, including pieceworkers, and total wages:.....					
24 Greatest number employed at any one time during the year.....	79	362	10,529	854	193
25 Least number employed at any one time during the year.....	56	259	7,800	626	145
26 Average number.....	63	302	8,878	713	152
27 Total wages.....	\$35,278	\$209,759	\$4,542,050	\$360,790	\$62,013
28 Men 16 years and over—					
29 Average number.....	44	260	6,273	507	103
30 Wages.....	\$29,588	\$193,694	\$3,801,496	\$300,359	\$50,647
31 Women 16 years and over—					
32 Average number.....	9	42	2,158	188	41
33 Wages.....	\$4,116	\$16,065	\$664,399	\$57,521	\$10,502
34 Children under 16 years—					
35 Average number.....	10		447	18	8
36 Wages.....	\$1,574		\$76,155	\$2,910	\$364
37 Average number of wage-earners, including pieceworkers, employed during each month:					
38 Men 16 years and over—					
39 January.....	44	281	6,318	512	101
40 February.....	44	278	6,321	501	105
41 March.....	44	260	6,357	492	104
42 April.....	43	264	6,310	491	102
43 May.....	42	251	6,247	511	96
44 June.....	42	245	6,139	505	94
45 July.....	39	229	5,921	495	100
46 August.....	39	233	5,882	493	100
47 September.....	45	248	6,157	507	102
48 October.....	46	255	6,435	523	107
49 November.....	50	286	6,560	522	114
50 December.....	50	250	6,629	532	111
51 Women 16 years and over—					
52 January.....	9	42	2,138	192	45
53 February.....	9	44	2,109	180	46
54 March.....	9	47	2,138	177	43
55 April.....	9	44	2,087	193	36
56 May.....	9	41	2,063	185	38
57 June.....	9	41	2,128	190	38
58 July.....	9	38	2,049	187	37
59 August.....	9	39	2,010	189	39
60 September.....	9	46	2,109	184	43
61 October.....	9	41	2,292	195	44
62 November.....	9	42	2,366	192	42
63 December.....	9	39	2,407	192	41
64 Children under 16 years—					
65 January.....	11		423	18	7
66 February.....	11		428	17	7
67 March.....	11		428	17	7
68 April.....	9		433	18	7
69 May.....	9		431	18	7
70 June.....	8		431	18	8
71 July.....	9		451	18	8
72 August.....	9		448	18	9
73 September.....	10		466	18	9
74 October.....	11		477	18	9
75 November.....	11		483	19	9
76 December.....	11		465	19	9
77 Typecasting and typesetting machines used, number.....		2	126	7	3
78 Operators of typecasting or typesetting machines (included in wage-earners).....		4	176	6	4
79 Hand compositors (included in wage-earners).....	29	146	2,865	261	74
80 Miscellaneous expenses, total.....	\$17,766	\$79,903	\$3,515,680	\$129,171	\$12,290
81 Rent of works.....	\$5,521	\$23,396	\$464,449	\$33,538	\$3,797
82 Taxes.....	\$439	\$2,430	\$25,204	\$2,562	\$1,445
83 Rent of offices, interest, insurance, and all other sundry expenses not hitherto included.....	\$11,174	\$51,727	\$1,839,636	\$82,714	\$7,048
84 Contract work.....	\$632	\$2,350	\$1,186,391	\$10,357	
85 Materials used, aggregate cost.....	\$44,992	\$252,861	\$5,882,623	\$434,224	\$68,486
86 Paper, total cost.....	\$28,715	\$219,109	\$4,541,301	\$270,012	\$52,945
87 For books and pamphlets and music.....		\$350	\$838,392	\$10,284	
88 For job printing.....	\$28,715	\$218,759	\$3,702,909	\$259,728	\$52,945
89 Ink.....	\$802	\$6,959	\$203,404	\$10,084	\$1,482
90 Fuel.....	\$837	\$1,642	\$54,755	\$2,589	\$266
91 Rent of power and heat.....	\$1,628	\$7,618	\$105,050	\$11,168	\$2,372
92 Mill supplies.....	\$243	\$1,234	\$24,832	\$2,894	\$240
93 All other materials.....	\$9,909	\$16,189	\$926,393	\$132,712	\$8,577
94 Freight.....	\$2,768	\$110	\$26,888	\$4,765	\$2,604
95 Products, aggregate value.....	\$143,906	\$754,807	\$19,474,369	\$1,289,680	\$193,606
96 Book and pamphlet publications.....		\$16,050	\$4,886,740	\$75,435	
97 Sheet music and books of music.....			\$408,555		
98 Job printing.....	\$131,548	\$582,779	\$12,223,388	\$934,421	\$184,100
99 Bookbinding.....		\$54,100	\$676,899	\$67,619	\$6,006
100 Blank books.....		\$32,678	\$451,773	\$18,600	\$3,000
101 Electrotyping, engraving, etc.....		\$12,100	\$257,078	\$77,500	
102 All other products.....	\$12,358	\$57,100	\$569,930	\$116,105	\$500

¹ Includes establishments distributed as follows: Book and job—Nevada, 2; New Mexico, 3. Music—California, 1; Georgia, 1; Indiana, 2; Iowa, 2; Maryland, 1; Michigan, 1; Minnesota, 1; Nebraska, 1; New Jersey, 1; Tennessee, 1.

DETAILED SUMMARY, BY STATES AND TERRITORIES: 1905—Continued.

South Dakota.	Tennessee.	Texas.	Utah.	Vermont.	Virginia.	Washington.	West Virginia.	Wisconsin.	Wyoming.	All other states. ¹	
7	77	138	27	40	103	101	37	131	3	17	1
\$125,399	\$971,009	\$1,940,233	\$253,647	\$173,641	\$1,921,465	\$845,678	\$278,064	\$1,561,736	\$24,157	\$67,130	2
\$2,000	\$36,000	\$51,850	\$9,100	\$1,675	\$45,580	\$6,550	\$17,600	\$42,750	\$2,500	\$1,900	3
\$8,000	\$67,200	\$76,070	\$6,000	\$4,475	\$97,034	\$3,100	\$46,550	\$55,668	\$3,500	\$4,600	4
\$49,401	\$498,567	\$937,121	\$137,966	\$99,371	\$675,369	\$527,494	\$150,060	\$941,172	\$14,443	\$25,553	5
\$65,998	\$369,242	\$881,192	\$100,581	\$68,120	\$1,103,482	\$308,534	\$63,854	\$225,146	\$3,714	\$35,077	6
5	90	165	31	47	125	111	32	122	11	17	7
17	128	278	28	12	180	122	16	198	1	10	8
\$13,209	\$141,968	\$198,625	\$28,005	\$11,949	\$148,360	\$90,703	\$14,518	\$182,601	\$1,200	\$4,299	9
1	25	17	■	-----	19	20	■	49	-----	-----	10
\$1,200	\$50,860	\$35,980	\$4,200	-----	\$31,630	\$32,160	\$7,320	\$73,333	-----	-----	11
16	103	261	26	12	161	102	10	149	1	10	12
\$12,009	\$91,108	\$162,645	\$23,505	\$11,949	\$116,730	\$58,543	\$7,198	\$109,268	\$1,200	\$4,299	13
10	91	206	19	10	113	89	10	118	1	4	14
\$9,110	\$84,244	\$141,733	\$20,809	\$11,081	\$99,022	\$54,262	\$7,198	\$97,512	\$1,200	\$1,989	15
6	12	55	7	2	48	13	-----	31	-----	6	16
\$2,899	\$6,864	\$20,912	\$2,996	\$868	\$17,708	\$4,281	-----	\$11,756	-----	\$2,310	17
57	1,105	1,487	209	217	1,212	707	238	1,382	16	22	18
51	852	1,020	149	138	831	473	154	1,007	7	14	19
55	964	1,212	169	160	995	535	193	1,165	9	17	20
\$34,798	\$523,372	\$716,452	\$102,915	\$68,549	\$421,651	\$394,019	\$93,231	\$543,799	\$7,569	\$7,809	21
48	722	958	134	133	707	459	118	871	6	16	22
\$32,473	\$468,200	\$644,865	\$93,537	\$60,423	\$355,652	\$367,287	\$73,601	\$478,772	\$6,201	\$7,601	23
■	205	204	24	27	260	67	63	209	3	-----	24
\$2,169	\$48,535	\$62,755	\$7,265	\$8,126	\$61,980	\$24,672	\$17,047	\$51,193	\$1,368	-----	25
1	37	50	11	-----	28	9	12	85	-----	1	26
\$156	\$6,777	\$8,832	\$2,113	-----	\$4,019	\$2,060	\$2,583	\$13,834	-----	\$208	27
47	747	963	142	138	697	460	118	881	5	18	28
50	754	954	134	153	704	450	111	867	6	18	29
47	740	967	137	148	711	452	115	875	7	18	30
47	706	955	135	126	745	456	113	867	6	18	31
47	694	937	136	121	736	453	111	876	8	16	32
49	673	916	134	117	733	453	111	854	7	14	33
48	673	903	122	117	665	461	105	833	5	14	34
48	673	897	122	116	666	437	109	827	6	14	35
50	703	941	128	123	698	452	127	847	5	15	36
48	749	1,015	130	138	698	465	131	894	5	15	37
48	771	1,019	141	147	711	465	133	914	5	16	38
47	785	1,029	147	152	720	484	132	917	7	16	39
6	207	208	26	24	257	71	64	204	3	-----	40
6	203	204	25	25	251	71	57	195	3	-----	41
7	200	192	20	29	250	67	64	202	3	-----	42
7	197	190	23	25	268	65	64	198	4	-----	43
6	191	185	28	28	267	66	64	189	3	-----	44
7	185	188	23	23	264	73	58	185	3	-----	45
7	189	205	22	26	241	66	54	220	3	-----	46
6	199	206	21	27	250	65	56	206	3	-----	47
5	209	218	26	29	264	66	56	209	3	-----	48
5	219	217	24	28	258	65	69	234	3	-----	49
5	228	218	25	27	268	63	72	218	3	-----	50
5	233	217	25	28	282	66	69	248	3	-----	51
1	39	49	10	-----	25	9	14	87	-----	1	52
1	39	52	10	-----	26	9	14	87	-----	1	53
1	35	51	10	-----	36	9	14	87	-----	1	54
1	35	49	10	-----	26	9	14	81	-----	1	55
1	35	50	10	-----	27	13	13	80	-----	1	56
1	32	53	10	-----	26	8	13	78	-----	1	57
1	35	50	11	-----	27	8	9	87	-----	1	58
1	33	49	11	-----	27	9	9	89	-----	1	59
1	33	50	12	-----	28	10	12	87	-----	1	60
1	35	50	12	-----	27	10	13	87	-----	1	61
1	39	47	12	-----	29	10	10	85	-----	1	62
1	41	51	13	-----	29	9	10	85	-----	1	63
1	45	49	13	-----	30	12	12	18	-----	1	64
-----	16	16	1	-----	25	25	15	22	-----	-----	65
-----	19	26	2	-----	43	25	84	452	-----	-----	66
22	311	409	79	80	414	209	84	452	5	9	67
\$14,918	\$153,478	\$312,702	\$31,009	\$25,980	\$175,782	\$162,684	\$24,049	\$252,608	\$2,160	\$44,512	68
\$3,658	\$33,948	\$60,505	\$7,357	\$7,357	\$20,793	\$44,995	\$6,558	\$56,887	\$540	\$2,048	69
\$604	\$6,550	\$11,379	\$1,312	\$842	\$10,103	\$4,544	\$2,115	\$5,325	\$172	\$310	70
\$10,181	\$111,480	\$201,316	\$15,764	\$16,695	\$96,154	\$80,833	\$13,226	\$150,854	\$1,448	\$14,941	71
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	72
\$475	\$1,500	\$39,502	\$5,070	\$1,086	\$18,732	\$32,312	\$2,150	\$39,542	-----	\$27,213	73
\$39,887	\$611,836	\$747,647	\$107,463	\$76,182	\$538,196	\$317,411	\$69,697	\$637,669	\$6,603	\$9,587	74
\$31,839	\$504,391	\$504,909	\$86,446	\$67,329	\$442,501	\$240,180	\$58,490	\$502,421	\$5,080	\$6,261	75
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	76
\$31,839	\$504,066	\$504,909	\$85,326	\$67,329	\$442,501	\$240,180	\$58,490	\$502,421	\$5,080	\$6,261	77
\$773	\$23,928	\$17,066	\$3,435	\$2,211	\$10,353	\$11,079	\$2,510	\$11,284	\$84	\$299	78
\$1,450	\$5,604	\$6,250	\$740	\$1,215	\$5,636	\$1,224	\$1,996	\$17,647	\$184	\$177	79
\$1,919	\$14,210	\$18,530	\$4,228	\$2,209	\$14,673	\$13,599	\$976	\$3,069	\$60	\$27	80
\$179	\$2,268	\$3,789	\$452	\$304	\$1,910	\$2,323	\$443	\$68,690	\$542	\$1,675	81
\$3,216	\$44,450	\$192,455	\$12,007	\$1,900	\$52,606	\$46,236	\$4,181	\$3,668	\$549	\$927	82
\$511	\$16,985	\$1,648	\$155	\$964	\$4,487	\$2,770	\$1,101	\$2,002,705	\$21,324	\$105,001	83
\$116,436	\$1,675,405	\$2,375,393	\$332,693	\$239,733	\$1,555,962	\$1,239,832	\$291,639	\$108,170	-----	-----	84
\$1,500	\$7,225	\$6,500	\$6,300	\$1,200	\$31,317	\$70,358	\$11,500	\$298	-----	-----	85
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	86
\$91,912	\$1,130,972	\$1,432,006	\$265,878	\$226,448	\$959,582	\$974,273	\$261,076	\$1,639,443	\$10,786	\$29,232	87
\$10,126	\$163,575	\$185,547	\$22,400	\$3,325	\$17,875	\$30,320	\$20,038	\$49,656	\$1,772	-----	88
\$9,000	\$88,610	\$205,261	\$22,550	\$600	\$86,813	\$67,700	\$11,450	\$65,917	\$2,966	-----	89
\$1,098	\$117,478	\$39,391	\$3,698	\$10	\$1,435	\$22,337	\$150	\$10,250	-----	-----	90
\$2,800	\$163,461	\$472,588	\$11,867	\$5,150	\$70,213	\$74,844	\$5,075	\$68,471	-----	\$8,000	91

MANUFACTURES.

TABLE 79.—BOOK AND JOB PRINTING (INCLUDING MUSIC)—

	Oklahoma.	Oregon.	Pennsylvania.	Rhode Island.	South Carolina.
Power:					
90 Number of establishments reporting	11	44	624	57	12
91 Total horsepower.....	63	250	5,589	356	62
Owned—					
Engines—					
Steam—					
92 Number.....			72	4	
93 Horsepower.....			1,530	39	
Gas and gasoline—					
94 Number.....	1	3	185	3	1
95 Horsepower.....	2	7	1,093	16	2
Water wheels—					
96 Number.....				2	
97 Horsepower.....				5	
Water motors—					
98 Number.....		7	5	2	
99 Horsepower.....		14	19	6	
Electric motors—					
100 Number.....			128		
101 Horsepower.....			276		
102 Other power, horsepower.....					
Rented—					
Electric motors—					
103 Number.....	24	52	612	92	13
104 Horsepower.....	61	229	1,981	290	60
105 Other kind, horsepower.....			640		
106 Furnished to other establishments, horsepower.....			60		

PRINTING AND PUBLISHING.

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DETAILED SUMMARY, BY STATES AND TERRITORIES: 1905—Continued.

South Dakota.	Tennessee.	Texas.	Utah.	Vermont.	Virginia.	Washington.	West Virginia.	Wisconsin.	Wyoming.	All other states.	
5	54	104	23	32	73	71	33	112	3	3	90
57	643	705	78	89	554	359	194	1,011	1	8	91
	6	2		1	7	1	2	6			92
	253	75		2	91	60	4	231			93
1	9	19	1	5	10		18	34	1	1	94
1	50	96	1	10	92		133	316	7	3	95
											96
											97
			3	7	5	2	5	3			98
			1	16	7	2	19	4			99
	7						2	10			100
	28						11	24			101
											102
1	83	195	27	26	104	136	14	145	3	3	103
51	311	533	76	61	364	297	27	409	2	5	104
	1	1						27			105
	19	2						47			106

TABLE 80.—NEWSPAPERS AND PERIODICALS—DETAILED

	United States.	Alabama.	Arizona.	Arkansas.	California.
1 Number of establishments.....	18,033	184	46	259	695
2 Capital, total.....	\$239,505,949	\$1,080,626	\$340,651	\$1,050,806	\$6,545,352
3 Land.....	\$16,248,512	\$67,615	\$23,225	\$39,835	\$272,496
4 Buildings.....	\$26,118,122	\$87,530	\$31,717	\$76,460	\$507,250
5 Machinery, tools, and implements.....	\$93,592,564	\$620,847	\$182,309	\$596,599	\$3,461,296
6 Cash and sundries.....	\$103,546,751	\$304,634	\$103,400	\$337,912	\$2,304,310
7 Proprietors and firm members.....	18,044	199	35	333	641
8 Salaried officials, clerks, etc.:.....					
9 Total number.....	48,781	240	39	91	1,784
10 Total salaries.....	\$47,127,711	\$213,946	\$48,636	\$78,594	\$1,761,463
11 Officers of corporations—					
12 Number.....	2,729	21	4	4	74
13 Salaries.....	\$6,497,263	\$39,974	\$5,800	\$4,980	\$117,362
14 General superintendents, managers, clerks, etc.—					
15 Total number.....	46,052	219	35	87	1,710
16 Total salaries.....	\$40,630,448	\$173,972	\$42,836	\$73,614	\$1,644,101
17 Men—					
18 Number.....	36,048	194	30	70	1,468
19 Salaries.....	\$35,954,926	\$163,101	\$38,656	\$67,425	\$1,530,715
20 Women—					
21 Number.....	10,004	25	5	17	242
22 Salaries.....	\$4,675,522	\$10,871	\$4,180	\$6,189	\$113,386
23 Wage-earners, including pieceworkers, and total wages:					
24 Greatest number employed at any one time during the year.....	111,467	641	191	919	4,112
25 Least number employed at any one time during the year.....	89,775	510	154	700	3,290
26 Average number.....	96,857	542	155	748	3,536
27 Total wages.....	\$59,821,488	\$278,698	\$136,058	\$345,090	\$2,882,607
28 Men 16 years and over—					
29 Average number.....	76,807	480	136	561	2,993
30 Wages.....	\$53,910,791	\$266,293	\$128,636	\$305,807	\$2,621,889
31 Women 16 years and over—					
32 Average number.....	17,528	33	10	130	420
33 Wages.....	\$5,512,061	\$8,004	\$5,693	\$29,715	\$214,680
34 Children under 16 years—					
35 Average number.....	2,522	29	9	57	123
36 Wages.....	\$398,636	\$4,401	\$1,729	\$9,568	\$26,038
37 Average number of wage-earners, including pieceworkers, employed during each month:					
38 Men 16 years and over—					
39 January.....	76,648	492	131	563	3,046
40 February.....	76,455	473	126	566	3,060
41 March.....	76,869	474	125	573	3,054
42 April.....	76,536	479	124	554	3,000
43 May.....	76,457	473	128	552	3,009
44 June.....	75,950	470	129	554	2,969
45 July.....	75,306	473	131	540	2,948
46 August.....	75,418	471	135	547	2,920
47 September.....	76,686	481	141	564	2,926
48 October.....	77,858	485	147	568	2,975
49 November.....	78,409	493	159	579	2,990
50 December.....	79,092	496	156	572	3,019
51 Women 16 years and over—					
52 January.....	17,847	33	10	126	455
53 February.....	17,645	33	10	125	440
54 March.....	17,693	32	10	128	437
55 April.....	17,535	33	10	132	427
56 May.....	17,227	31	10	135	403
57 June.....	16,947	33	10	130	400
58 July.....	16,656	36	10	131	400
59 August.....	16,850	33	10	128	405
60 September.....	17,414	33	10	127	413
61 October.....	17,866	33	10	131	416
62 November.....	18,117	33	10	133	426
63 December.....	18,539	33	10	134	418
64 Children under 16 years—					
65 January.....	2,461	28	6	53	122
66 February.....	2,464	27	6	52	122
67 March.....	2,491	27	6	55	124
68 April.....	2,494	27	10	57	122
69 May.....	2,507	27	10	56	122
70 June.....	2,536	27	10	57	120
71 July.....	2,562	27	10	58	123
72 August.....	2,570	26	10	61	125
73 September.....	2,545	31	10	60	122
74 October.....	2,545	34	10	60	126
75 November.....	2,538	34	10	57	122
76 December.....	2,551	33	10	58	126
77 Typecasting and typesetting machines used, number.....	6,793	48	13	28	315
78 Operators of typecasting or typesetting machines (included in wage-earners).....	8,842	61	16	33	411
79 Hand compositors (included in wage-earners).....	40,708	331	71	414	1,306
80 Miscellaneous expenses, total.....	\$67,635,238	\$227,167	\$37,028	\$141,099	\$2,155,072
81 Rent of works.....	\$4,415,156	\$16,966	\$7,220	\$25,040	\$204,326
82 Taxes.....	\$1,215,387	\$6,831	\$2,958	\$5,406	\$35,064
83 Rent of offices, interest, insurance, and all other sundry expenses not hitherto included.....	\$45,785,614	\$171,349	\$23,225	\$93,116	\$1,292,248
84 Contract work.....	\$16,219,081	\$32,021	\$3,625	\$17,537	\$623,434
85 Materials used, aggregate cost.....	\$70,354,474	\$266,732	\$70,353	\$241,284	\$2,371,274
86 Paper, total cost.....	\$58,964,241	\$223,359	\$53,082	\$194,772	\$2,026,586
87 For newspapers—					
88 Pounds.....	1,486,623,834	5,790,174	687,831	2,494,517	59,687,162
89 Cost.....	\$34,479,331	\$158,221	\$30,967	\$83,414	\$1,565,577
90 For periodicals—					
91 Pounds.....	335,005,996	485,895	2,800	140,360	2,599,164
92 Cost.....	\$12,759,444	\$4,982	\$165	\$6,060	\$144,110
93 For books and pamphlets.....	\$2,222,791	\$2,639			\$13,970
94 For job printing.....	\$9,502,675	\$57,517	\$21,950	\$105,298	\$302,929
95 Ink.....	\$2,183,486	\$8,141	\$1,831	\$6,986	\$73,280
96 Fuel.....	\$1,462,171	\$6,061	\$1,131	\$8,737	\$27,364
97 Rent of power and heat.....	\$1,492,525	\$12,347	\$4,008	\$2,755	\$93,534
98 Mill supplies.....	\$400,753	\$3,145	\$784	\$1,760	\$14,641
99 All other materials.....	\$5,240,259	\$8,460	\$3,220	\$12,770	\$89,240
100 Freight.....	\$611,039	\$5,219	\$6,297	\$13,504	\$46,629
101 Products, aggregate value.....	\$309,301,854	\$1,407,678	\$391,039	\$1,185,546	\$11,636,953
102 Newspapers and periodicals, total value.....	\$256,816,282	\$1,224,752	\$304,000	\$800,646	\$10,142,015
103 Advertising.....	\$145,517,591	\$779,416	\$191,329	\$451,701	\$6,264,532
104 Subscriptions and sales.....	\$111,298,691	\$445,336	\$112,671	\$348,945	\$3,877,483

SUMMARY, BY STATES AND TERRITORIES: 1905.

Colorado.	Connecticut.	Delaware.	District of Columbia.	Florida.	Georgia.	Idaho.	Illinois.	Indian Territory.	Indiana.	Iowa.	
328	129	33	55	125	278	85	1,390	153	669	961	1
\$2,434,577	\$2,722,362	\$350,063	\$2,043,320	\$1,196,138	\$2,739,056	\$471,922	\$20,337,296	\$455,992	\$6,017,198	\$5,922,515	2
\$85,705	\$278,000	\$34,800	\$252,360	\$16,100	\$117,218	\$37,200	\$728,767	\$17,875	\$246,175	\$305,135	3
\$166,182	\$383,557	\$38,550	\$540,721	\$37,770	\$208,827	\$48,633	\$2,332,543	\$26,800	\$443,615	\$644,220	4
\$1,251,730	\$1,233,113	\$172,146	\$688,347	\$946,378	\$994,524	\$276,334	\$6,856,869	\$301,194	\$2,773,452	\$3,118,440	5
\$930,960	\$827,692	\$104,567	\$561,892	\$195,910	\$1,418,487	\$109,755	\$10,419,117	\$110,123	\$2,553,956	\$1,854,720	6
312	93	20	26	121	300	90	1,285	181	686	1,102	7
529	459	52	365	146	397	43	4,061	61	1,238	883	8
\$591,914	\$475,183	\$40,310	\$424,566	\$148,405	\$341,006	\$42,673	\$4,064,295	\$47,353	\$959,519	\$735,517	9
35	43	8	21	21	50	10	301	5	99	72	10
\$74,170	\$30,715	\$9,914	\$70,416	\$38,960	\$86,050	\$7,483	\$696,794	\$6,060	\$150,645	\$110,308	11
494	416	44	344	125	347	33	4,660	56	1,139	811	12
\$517,744	\$394,468	\$30,396	\$354,150	\$109,445	\$254,956	\$35,190	\$3,967,501	\$41,293	\$808,874	\$625,209	13
413	366	32	252	113	280	30	3,358	46	868	594	14
\$472,324	\$367,717	\$25,462	\$310,914	\$104,275	\$226,701	\$33,812	\$3,311,344	\$37,717	\$707,737	\$528,575	15
81	50	12	92	12	67	3	1,302	10	271	217	16
\$45,420	\$26,751	\$4,934	\$43,236	\$5,170	\$28,255	\$1,378	\$656,157	\$3,576	\$101,137	\$96,654	17
1,240	1,263	217	510	541	1,260	305	8,334	426	3,392	4,070	18
984	1,054	161	386	357	1,062	277	6,710	309	3,124	3,173	19
1,053	1,133	172	428	389	1,129	249	7,205	344	3,300	3,358	20
\$795,248	\$769,409	\$76,149	\$333,215	\$200,975	\$580,528	\$172,288	\$4,789,288	\$170,973	\$1,647,987	\$1,567,295	21
901	935	141	342	317	993	192	5,881	280	2,413	2,343	22
\$733,266	\$694,177	\$68,410	\$311,121	\$184,299	\$554,368	\$153,844	\$4,373,756	\$155,288	\$1,429,900	\$1,305,054	23
93	164	27	77	55	84	38	1,195	49	820	893	24
\$44,557	\$69,079	\$7,165	\$20,622	\$14,496	\$19,898	\$14,718	\$395,685	\$13,035	\$208,930	\$244,478	25
59	34	4	9	17	52	19	129	15	67	122	26
\$17,425	\$6,153	\$574	\$1,472	\$2,180	\$6,262	\$3,726	\$19,847	\$2,650	\$9,157	\$17,763	27
912	938	140	342	325	996	192	5,800	275	2,485	2,302	28
897	933	146	343	333	992	186	5,778	268	2,459	2,292	29
911	937	144	343	342	993	179	5,867	272	2,460	2,303	30
886	937	142	338	331	985	178	5,864	277	2,459	2,304	31
884	931	139	339	320	985	178	5,866	278	2,425	2,341	32
875	936	135	331	315	978	183	5,813	284	2,372	2,292	33
862	922	136	343	298	959	181	5,732	277	2,328	2,264	34
866	928	136	341	303	962	186	5,789	277	2,321	2,291	35
901	932	141	337	302	984	192	5,902	284	2,396	2,330	36
928	934	142	341	307	1,019	213	6,005	289	2,399	2,420	37
940	947	144	354	309	1,033	221	6,024	290	2,414	2,455	38
950	945	147	352	319	1,030	215	6,132	289	2,438	2,492	39
90	162	28	59	59	84	36	1,167	49	840	893	40
88	154	31	79	56	84	35	1,188	48	828	886	41
89	166	27	80	54	85	36	1,195	56	834	909	42
93	155	25	77	54	85	36	1,193	51	800	871	43
93	167	26	76	54	86	42	1,170	49	805	880	44
91	160	26	73	55	83	42	1,170	47	793	866	45
89	178	25	71	54	82	33	1,160	45	782	863	46
86	171	25	74	54	83	35	1,169	44	784	893	47
92	153	25	76	53	84	36	1,208	50	825	812	48
99	161	28	76	52	84	41	1,221	47	825	912	49
159	159	28	80	56	84	41	1,249	51	858	916	50
114	182	30	79	59	84	43	1,250	51	865	944	51
59	32	4	11	14	49	18	126	14	66	122	52
58	34	4	9	14	49	18	127	14	63	121	53
59	34	4	10	23	49	19	127	15	65	128	54
59	39	4	8	22	52	19	131	15	64	116	55
59	37	4	8	22	52	19	133	15	66	117	56
59	34	4	8	22	50	19	132	15	70	121	57
59	34	4	8	15	50	18	131	15	72	119	58
59	33	4	9	15	55	21	130	15	72	120	59
59	33	4	8	15	55	19	129	15	68	126	60
59	33	4	9	15	55	19	129	15	68	125	61
59	33	4	9	14	54	20	125	15	66	124	62
59	33	4	9	14	55	19	128	16	67	125	63
59	33	4	10	14	54	19	129	16	65	124	64
100	142	20	56	51	78	22	482	8	228	178	65
141	162	26	63	47	93	35	577	12	299	249	66
483	425	92	152	205	511	135	2,852	233	1,703	1,834	67
\$580,167	\$361,077	\$28,660	\$533,400	\$121,043	\$480,633	\$71,632	\$7,029,994	\$60,302	\$1,484,847	\$880,629	68
\$75,482	\$47,584	\$3,691	\$15,758	\$21,473	\$35,266	\$12,978	\$423,026	\$16,876	\$109,380	\$125,492	69
\$19,458	\$14,995	\$1,031	\$9,105	\$4,543	\$17,562	\$3,600	\$82,208	\$2,320	\$32,274	\$30,548	70
\$327,844	\$221,444	\$20,623	\$353,247	\$81,096	\$334,546	\$54,374	\$4,590,413	\$38,959	\$882,958	\$630,169	71
\$157,383	\$77,954	\$3,315	\$155,290	\$13,931	\$93,259	\$680	\$1,934,347	\$2,147	\$460,235	\$94,420	72
\$839,853	\$567,213	\$58,597	\$342,165	\$194,044	\$566,718	\$102,173	\$6,910,646	\$116,224	\$1,504,820	\$1,422,002	73
\$732,558	\$464,208	\$49,340	\$158,118	\$303,599	\$486,651	\$86,191	\$6,044,722	\$100,773	\$1,296,741	\$1,153,632	74
22,167,445	12,448,632	1,244,744	10,743,280	2,873,554	15,396,718	973,444	166,052,026	989,337	34,718,654	22,374,924	75
\$563,568	\$316,813	\$34,678	\$248,776	\$77,895	\$371,380	\$39,040	\$3,747,727	\$39,289	\$822,166	\$621,745	76
1,091,600	340,070	3,800	622,220	42,520	839,174	4,000	40,729,341	20,770	2,027,105	2,423,636	77
\$42,769	\$15,777	\$152	\$27,435	\$1,780	\$29,800	\$180	\$1,464,911	\$895	\$31,192	\$87,868	78
\$493	\$325	\$381	\$125	\$110	\$660		\$142,314	\$1,100	\$10,342	\$26,893	79
\$125,728	\$131,293	\$14,129	\$27,263	\$78,333	\$84,811	\$46,971	\$689,770	\$59,489	\$383,041	\$417,126	80
\$42,836	\$15,693	\$1,970	\$8,674	\$4,604	\$19,601	\$2,843	\$204,611	\$3,222	\$47,306	\$38,434	81
\$9,778	\$22,438	\$2,399	\$9,422	\$5,764	\$6,290	\$3,328	\$133,139	\$4,506	\$42,653	\$53,768	82
\$16,000	\$23,724	\$2,858	\$5,803	\$5,773	\$21,677	\$2,349	\$128,024	\$2,467	\$44,827	\$34,550	83
\$3,354	\$2,635	\$310	\$4,046	\$754	\$6,322	\$560	\$44,135	\$948	\$12,887	\$8,140	84
\$27,671	\$31,970	\$850	\$10,266	\$12,437	\$23,292	\$5,829	\$320,115	\$2,164	\$89,740	\$95,659	85
\$7,056	\$6,545	\$870	\$355	\$6,594	\$2,885	\$1,073	\$35,900	\$2,144	\$21,666	\$37,519	86
\$3,898,570	\$2,767,087	\$245,731	\$2,091,158	\$872,543	\$2,657,890	\$527,976	\$28,644,981	\$588,517	\$7,250,722	\$6,658,759	87
\$3,324,556	\$2,302,451	\$194,377	\$1,978,119	\$639,808	\$2,330,185	\$354,558	\$25,170,464	\$374,774	\$5,662,457	\$4,942,002	88
\$2,009,344	\$1,384,413	\$142,355	\$1,258,378	\$418,354	\$1,448,299	\$207,580	\$13,780,752	\$220,452	\$2,918,504	\$2,704,186	89
\$1,315,212	\$918,038	\$52,022	\$719,741	\$221,454	\$881,886	\$146,978	\$11,389,712	\$154,322	\$2,743,953	\$2,237,816	90

TABLE 80.—NEWSPAPERS AND PERIODICALS—DETAILED

	United States.	Alabama.	Arizona.	Arkansas.	California.
Products—Continued.					
90 Book and pamphlet publications.....	\$14,697,941	\$6,057			\$218,466
91 Sheet music and books of music.....	\$128,961				
92 Job printing.....	\$32,619,225	\$171,207	\$85,839	\$370,721	\$1,184,662
93 Bookbinding.....	\$1,449,949	\$300	\$200	\$5,542	\$56,936
94 Blank books.....	\$434,147	\$120	\$300	\$7,747	\$5,610
95 Electrotyping, engraving, etc.....	\$647,037	\$3,368			\$13,547
96 All other products.....	\$2,508,312	\$1,874	\$700	\$890	\$15,717
97 Number of publications, aggregate.....	21,394	203	56	284	800
By period of issue—					
98 Daily, total.....	456	10	4	7	36
99 Morning.....	332	7	3	2	34
100 Evening.....	124	3	1	5	2
101 Daily, except Sunday, total.....	1,996	11	12	20	112
102 Morning.....	305	1	2	1	28
103 Evening.....	1,691	10	10	19	84
104 Weekly.....	15,046	171	38	232	487
105 Semiweekly.....	645	1		5	26
106 Triweekly.....	58				2
107 Monthly.....	2,500	7	2	14	124
108 Quarterly.....	353			1	11
109 All other.....	340	3		5	11
By character—					
110 News, politics, and family reading.....	16,578	183	53	253	563
111 Religious.....	1,287	4		12	45
112 Agricultural, horticultural, dairying, stock raising, etc.....	300	4	1	1	25
113 Commerce, finance, insurance, railroad, etc.....	364				28
114 Trade journals generally.....	627	1			30
115 General literature, including monthly and quarterly magazines.....	328	1			14
116 Medicine and surgery.....	192	2		1	7
117 Law.....	81	1			2
118 Science and mechanics.....	83			1	6
119 Fraternal organizations.....	450	2	2	6	37
120 Education and history.....	173	1		3	3
121 Society, art, music, fashion, etc.....	155			1	7
122 College and school periodicals.....	178	2		3	8
123 Miscellaneous.....	538	2		3	34
By language—					
124 Arabic.....	3				
125 Armenian.....	3				
126 Bohemian.....	44				
127 Bohemian and English.....	2				
128 Chinese.....	7				
129 Dutch.....	21				
130 English.....	20,184	200	54	281	763
131 Finnish.....	13				
132 French.....	41				
133 French and English.....	3				5
134 Gaelic.....	2				
135 Gaelic and English.....	16				
136 German.....	619	3		3	13
137 German and English.....	29				2
138 German and Hebrew.....	13				
139 Greek.....	5				
140 Hebrew.....	18				
141 Hungarian.....	5				
142 Indian and English.....	2				
143 Italian.....	58				10
144 Italian and English.....	2				
145 Japanese.....	9				4
146 Lithuanian.....	11				
147 Polish.....	46				
148 Portuguese.....	10				
149 Scandinavian.....	158				
150 Slavonic, not specified.....	20				4
151 Spanish.....	31		2		
152 Spanish and English.....	5				
153 Syrian.....	2				
154 Welsh.....	2				
155 All others.....	10				
Circulation (average per issue):					
156 Daily.....	21,079,130	101,494	22,404	40,304	689,779
157 Weekly.....	36,732,037	213,543	30,286	246,118	769,155
158 Semiweekly.....	2,937,464	3,783		6,200	26,800
159 Triweekly.....	206,194				2,300
160 Monthly.....	64,066,155	11,820	3,676	45,330	522,526
161 Quarterly.....	11,709,655			250	26,950
162 All other classes.....	2,878,594	17,250		3,780	12,280
163 Total foreign circulation.....	1,905,210	779	2,590	223	34,676
164 Canada.....	1,002,685	14	75	50	9,417
Power:					
165 Number of establishments reporting.....	9,125	59	18	83	304
166 Total horsepower.....	104,390	530	85	487	3,484
Owned—					
Engines—					
Steam—					
167 Number.....	1,251	5		7	7
168 Horsepower.....	31,945	97		187	300
Gas and gasoline—					
169 Number.....	5,146	32	11	62	83
170 Horsepower.....	18,133	96	25	161	292
Water wheels—					
171 Number.....	79	1			16
172 Horsepower.....	647	3			42
Water motors—					
173 Number.....	648	5			17
174 Horsepower.....	2,251	10			39
Electric motors—					
175 Number.....	1,531			37	8
176 Horsepower.....	9,558			47	214
177 Other power, horsepower.....	32	2			
Rented—					
Electric motors—					
178 Number.....	8,311	51	20	23	602
179 Horsepower.....	39,768	322	60	90	2,597
180 Other kind, horsepower.....	2,056			2	
181 Furnished to other establishments, horsepower.....	662				

PRINTING AND PUBLISHING.

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SUMMARY, BY STATES AND TERRITORIES: 1905—Continued.

Colorado.	Connecticut.	Delaware.	District of Columbia.	Florida.	Georgia.	Idaho.	Illinois.	Indian Territory.	Indiana.	Iowa.	
\$5,077	\$2,770	\$1,600	\$5,924	\$200	\$3,600		\$752,176	\$3,000	\$213,022	\$93,743	90
\$410,604	\$438,819	\$49,100	\$104,103	\$218,946	\$35,200		\$950		\$3,820	\$721	91
\$855	\$400			\$6,429	\$278,532	\$166,980	\$2,417,794	\$210,098	\$1,146,955	\$1,371,143	92
\$576	\$2,127			\$1,900	\$3,000	\$1,500	\$48,385	\$150	\$62,722	\$79,487	93
\$97,478	\$19,944	\$654	\$3,012	\$1,508	\$1,000	\$500	\$24,931	\$450	\$81,375	\$37,385	94
367	156	34	63	\$3,752	\$6,373	\$3,438	\$25,467		\$250	\$23,299	95
14	8			149	304	92	\$204,814	\$45	\$80,121	\$110,979	96
10							1,715	167	839	1,067	97
4	3		2	5	14	3	38	3	19	13	98
28	33	4	1	5	11	3	21	1	15	10	99
5	5		3	15	3		17	2	4	3	100
25	24	1	1	3	12	3	154	12	142	53	101
274	83	3	2	12	12	3	15		13	5	102
6	10	2	24	117	233	74	139	12	129	48	103
1	1			3	9	9	1,091	148	562	864	104
38	19	3	28	9	2	1	52	1	32	57	105
6	3		3		29	1	287	3	68	60	106
	4		3		5		50		4	6	107
293	117	29	13	130	251	1	36		12	11	108
9	3	1	6	8	13	89	1,162	158	716	952	109
13	2	1	2	4	7		123	4	39	31	110
16	7	1	2	4	6	1	36	1	15	16	111
7	1		5	2	11		37		5	4	112
3	2				11		108		11	10	113
3	3				8		28	1	7	8	114
1	2		1		1		17		6	2	115
1	3		4				10				116
9	2	1	3	2	4	2	42	1	1	12	117
2	1		3	2	1		35		3	9	118
8	10	1	4	1	1		17			1	119
			12	1	6		15	1	5	9	120
							77	1	15	13	121
											122
											123
							17				124
										1	125
											126
											127
355	145	32	62	147	303	92	1,574	165	803	1,009	128
							2				129
											130
											131
											132
											133
											134
3	5	2	1		1		56		33	41	135
							5		2	1	136
	1						2				137
							5				138
											139
4	4							1			140
							4				141
							1				142
							2				143
							13		1		144
											145
1											146
2	1			2			33			11	147
2											148
											149
											150
											151
											152
											153
											154
								1			155
219,106	228,140	30,960	113,162	55,232	180,092	13,718	2,013,115	18,320	535,740	327,942	156
294,242	216,479	38,287	213,500	112,124	371,274	51,265	4,671,043	115,404	892,184	1,167,294	157
4,900	27,110	1,580		8,500	74,813	10,950	158,786	1,000	55,965	176,605	158
401	450				6,800	900	18,427			12,025	159
348,815	46,950	7,150	414,530	17,325	120,927	2,000	6,344,791	6,057	1,288,928	846,256	160
	6,050		2,886				1,898,000		37,300	27,000	161
12,300	32,300		2,375		28,775	500	133,643		228,676	56,975	162
9,665	961	472	3,139	1,131	792	100	136,025	413	16,537	28,249	163
2,618	442	46	1,408	636	135		94,166	330	10,022	13,838	164
131	86	23	18	51	88	35	669	56	395	586	165
1,060	1,569	126	779	272	819	134	8,773	166	2,180	3,082	166
											167
10	34	1	7	6	8	1	70	1	34	24	168
235	561	10	308	25	79	2	2,739	5	350	290	169
42	17	7	4	34	49	17	391	47	278	462	170
105	85	23	19	132	169	46	1,214	112	264	1,358	171
											172
	1					2	1		1		173
	10					5	2		5		174
17	9	2		2	8	6	26	2	20	17	175
53	25	2		7	20	18	72	4	103	60	176
											177
	5		40				162	1	5	2	178
	34		160				781	2	93	10	179
											180
136	92	21	50	29	63	18	762	15	293	251	181
643	852	91	292	108	551	63	3,823	43	1,336	1,228	182
24	2						142		29	136	183
	6						103		4	6	184

TABLE 80.—NEWSPAPERS AND PERIODICALS—DETAILED

		Kansas.	Kentucky.	Louisiana.	Maine.	Maryland	Massachu- setts.
1	Number of establishments.....	639	292	171	115	160	420
2	Capital, total.....	\$2,783,115	\$3,147,027	\$1,366,180	\$1,555,165	\$2,713,061	\$13,551,342
3	Land.....	\$106,055	\$590,983	\$61,435	\$34,440	\$213,240	\$976,025
4	Buildings.....	\$299,186	\$323,340	\$83,225	\$149,300	\$303,425	\$1,750,379
5	Machinery, tools, and implements.....	\$1,617,963	\$1,094,460	\$642,006	\$745,928	\$856,651	\$4,778,600
6	Cash and sundries.....	\$759,911	\$1,138,244	\$579,514	\$625,497	\$1,339,745	\$6,046,338
7	Proprietors and firm members.....	751	310	160	75	162	324
8	Salaried officials, clerks, etc.:—						
9	Total number.....	346	460	404	249	664	3,283
10	Total salaries.....	\$243,834	\$443,368	\$355,870	\$216,901	\$620,249	\$3,518,041
11	Officers of corporations—						
12	Number.....	22	41	20	21	39	141
13	Salaries.....	\$22,724	\$75,672	\$37,400	\$31,749	\$76,127	\$394,360
14	General superintendents, managers, clerks, etc.—						
15	Total number.....	324	419	384	228	625	3,142
16	Total salaries.....	\$221,110	\$367,696	\$318,470	\$185,152	\$544,122	\$3,123,681
17	Men—						
18	Number.....	232	316	342	154	555	2,251
19	Salaries.....	\$184,052	\$328,081	\$298,440	\$152,331	\$505,944	\$2,687,414
20	Women—						
21	Number.....	92	103	42	74	70	891
22	Salaries.....	\$37,058	\$39,615	\$25,030	\$32,821	\$38,178	\$436,267
23	Wage-earners, including pieceworkers, and total wages:						
24	Greatest number employed at any one time during the year.....	2,492	1,440	740	1,469	1,238	6,075
25	Least number employed at any one time during the year.....	1,861	1,170	601	1,180	997	5,052
26	Average number.....	1,941	1,218	630	1,278	1,076	5,437
27	Total wages.....	\$857,451	\$644,058	\$470,906	\$522,494	\$633,972	\$3,946,634
28	Men 16 years and over—						
29	Average number.....	1,301	1,007	573	568	981	4,254
30	Wages.....	\$694,426	\$599,715	\$461,781	\$321,003	\$617,328	\$3,433,158
31	Women 16 years and over—						
32	Average number.....	580	141	23	694	59	1,120
33	Wages.....	\$154,169	\$34,945	\$5,644	\$198,648	\$12,414	\$471,866
34	Children under 16 years—						
35	Average number.....	60	70	34	16	36	63
36	Wages.....	\$8,856	\$9,398	\$3,481	\$2,843	\$4,230	\$11,610
37	Average number of wage-earners, including pieceworkers, employed during each month:						
38	Men 16 years and over—						
39	January.....	1,266	990	589	560	965	4,336
40	February.....	1,242	989	580	573	980	4,337
41	March.....	1,261	996	590	576	992	4,364
42	April.....	1,276	1,006	590	571	994	4,333
43	May.....	1,289	1,019	548	568	988	4,243
44	June.....	1,272	1,002	544	561	978	4,201
45	July.....	1,266	996	541	561	966	4,131
46	August.....	1,300	999	571	566	969	4,073
47	September.....	1,333	1,018	570	570	980	4,197
48	October.....	1,368	1,028	584	583	995	4,272
49	November.....	1,378	1,026	583	563	979	4,284
50	December.....	1,361	1,015	586	564	986	4,277
51	Women 16 years and over—						
52	January.....	567	136	24	699	68	1,133
53	February.....	553	136	24	710	73	1,139
54	March.....	569	139	24	713	56	1,163
55	April.....	576	150	25	705	54	1,123
56	May.....	566	147	18	702	55	1,079
57	June.....	554	141	18	677	56	1,075
58	July.....	567	136	18	670	57	1,061
59	August.....	573	139	27	667	56	1,065
60	September.....	599	143	25	670	58	1,123
61	October.....	608	139	24	707	58	1,190
62	November.....	622	143	24	699	62	1,148
63	December.....	606	143	25	709	55	1,141
64	Children under 16 years—						
65	January.....	59	70	34	14	35	62
66	February.....	53	70	34	14	35	62
67	March.....	56	69	34	15	35	60
68	April.....	60	70	36	15	36	61
69	May.....	62	72	32	15	36	60
70	June.....	61	69	32	17	35	60
71	July.....	70	69	34	17	36	63
72	August.....	68	70	34	17	37	63
73	September.....	60	71	35	16	37	65
74	October.....	58	71	35	16	37	64
75	November.....	58	70	34	18	37	67
76	December.....	55	69	34	18	36	69
77	Typecasting and typesetting machines used, number.....	73	80	72	71	101	435
78	Operators of typecasting or typesetting machines (included in wage-earners).....	101	123	86	105	129	585
79	Hand compositors (included in wage-earners).....	984	639	289	349	422	2,249
80	Miscellaneous expenses, total.....	\$394,333	\$575,732	\$401,581	\$913,876	\$716,125	\$4,970,219
81	Rent of works.....	\$60,292	\$38,531	\$32,275	\$27,018	\$40,786	\$343,747
82	Taxes.....	\$17,615	\$17,108	\$7,636	\$9,831	\$17,295	\$112,476
83	Rent of offices, interest, insurance, and all other sundry expenses not hitherto included.....	\$275,628	\$362,749	\$289,387	\$728,194	\$466,932	\$3,689,937
84	Contract work.....	\$40,798	\$157,344	\$72,283	\$148,833	\$191,112	\$824,059
85	Materials used, aggregate cost.....	\$675,924	\$536,007	\$386,110	\$682,269	\$655,556	\$5,494,943
86	Paper, total cost.....	\$566,652	\$444,876	\$340,818	\$530,930	\$562,499	\$4,125,613
87	For newspapers—						
88	Pounds.....	10,325,108	11,846,586	10,094,462	6,380,212	20,995,746	109,748,684
89	Cost.....	\$323,802	\$276,101	\$262,716	\$148,645	\$463,513	\$2,484,639
90	For periodicals—						
91	Pounds.....	599,440	1,766,688	327,589	12,209,034	129,690	21,909,876
92	Cost.....	\$18,504	\$56,031	\$15,329	\$278,792	\$5,210	\$314,799
93	For books and periodicals.....	\$5,334	\$2,864	-----	\$3,660	\$12,264	\$394,626
94	For job printing.....	\$219,012	\$109,880	\$62,773	\$98,833	\$81,512	\$431,549
95	Ink.....	\$18,860	\$16,625	\$13,056	\$21,065	\$20,129	\$151,536
96	Fuel.....	\$27,751	\$21,031	\$7,324	\$15,452	\$18,864	\$73,854
97	Rent of power and heat.....	\$12,766	\$13,980	\$11,983	\$15,012	\$17,138	\$112,081
98	Mill supplies.....	\$3,853	\$4,254	\$1,456	\$4,951	\$4,741	\$25,908
99	All other materials.....	\$22,618	\$31,057	\$9,252	\$31,908	\$28,907	\$982,009
100	Freight.....	\$23,424	\$4,184	\$2,221	\$12,951	\$3,278	\$23,947
101	Products, aggregate value.....	\$3,119,494	\$2,871,989	\$2,066,786	\$2,644,661	\$3,219,355	\$21,020,237
102	Newspapers and periodicals, total.....	\$2,377,861	\$2,455,870	\$1,830,313	\$2,267,533	\$2,748,826	\$16,924,654
103	Advertising.....	\$1,255,135	\$1,375,421	\$1,039,969	\$1,252,158	\$1,995,040	\$8,820,549
104	Subscriptions and sales.....	\$1,122,726	\$1,080,449	\$790,344	\$1,015,375	\$753,186	\$8,104,105

SUMMARY, BY STATES AND TERRITORIES: 1905—Continued.

Michigan.	Minnesota.	Mississippi.	Missouri.	Montana.	Nebraska.	Nevada.	New Hampshire.	New Jersey.	New Mexico.	New York.	
663	714	190	889	83	559	29	68	325	53	1,497	1
\$4,725,303	\$6,030,434	\$606,425	\$3,867,886	\$939,786	\$2,674,061	\$167,637	\$856,895	\$4,537,558	\$266,792	\$62,378,289	2
\$236,201	\$179,335	\$29,470	\$301,629	\$43,600	\$146,178	\$14,825	\$32,750	\$552,752	\$11,850	\$4,905,090	3
\$366,290	\$694,181	\$70,385	\$1,262,994	\$95,857	\$257,620	\$18,800	\$90,200	\$692,592	\$30,750	\$5,430,733	4
\$2,500,313	\$2,755,151	\$363,978	\$3,765,142	\$490,048	\$1,216,040	\$97,700	\$425,891	\$2,198,399	\$139,440	\$16,167,952	5
\$1,622,499	\$2,401,767	\$142,592	\$3,538,121	\$310,281	\$1,054,223	\$36,312	\$308,034	\$1,093,815	\$84,752	\$35,873,614	6
685	765	214	957	72	593	33	60	274	52	1,214	7
1,196	1,241	61	1,953	126	499	73	73	754	34	14,713	8
\$1,000,695	\$1,067,252	\$45,635	\$1,863,553	\$186,970	\$498,048	\$22,300	\$71,563	\$721,991	\$28,490	\$15,380,216	9
88	58	4	120	11	34	-----	11	61	10	547	10
\$124,440	\$149,644	\$4,000	\$276,954	\$17,060	\$74,330	-----	\$16,683	\$136,790	\$11,566	\$2,113,253	11
1,108	1,183	57	1,833	115	465	21	62	693	24	14,166	12
\$876,255	\$917,608	\$41,635	\$1,586,599	\$169,910	\$423,718	\$22,300	\$54,880	\$585,201	\$16,924	\$13,266,963	13
890	943	51	1,474	105	365	19	45	592	20	10,922	14
\$789,318	\$815,159	\$39,015	\$1,417,740	\$160,740	\$372,976	\$21,400	\$46,429	\$536,386	\$15,660	\$11,705,640	15
218	240	5	359	10	100	2	17	101	5	3,244	16
\$86,937	\$102,449	\$2,620	\$168,859	\$9,170	\$50,742	\$900	\$8,451	\$48,815	\$1,264	\$1,561,323	17
3,614	2,939	530	4,818	475	1,699	81	557	2,493	176	18,258	18
3,024	2,424	404	3,927	406	1,384	64	446	1,954	129	14,397	19
3,148	2,570	476	4,117	423	1,420	67	475	2,128	142	16,214	20
\$1,581,891	\$1,509,321	\$213,210	\$2,334,985	\$499,409	\$730,919	\$63,878	\$248,162	\$1,276,211	\$90,605	\$12,299,127	21
2,290	2,097	365	3,077	387	1,002	61	306	1,879	131	13,601	22
\$1,364,739	\$1,358,970	\$190,898	\$2,080,221	\$479,474	\$614,211	\$62,018	\$183,882	\$1,198,739	\$87,140	\$11,430,873	23
772	425	61	903	28	381	3	165	201	6	2,468	24
\$204,552	\$143,764	\$14,366	\$235,033	\$17,479	\$110,608	\$1,200	\$63,550	\$69,329	\$2,204	\$843,026	25
86	48	50	137	8	37	3	4	48	5	145	26
\$12,600	\$6,587	\$7,946	\$19,731	\$2,456	\$6,100	\$660	\$730	\$8,143	\$1,261	\$25,228	27
2,299	2,086	373	3,020	393	1,015	58	306	1,860	136	13,561	28
2,289	2,075	363	3,021	385	984	57	315	1,843	134	13,527	29
2,292	2,116	363	3,124	380	1,006	58	318	1,860	128	13,521	30
2,334	2,098	364	3,034	387	988	60	312	1,874	124	13,429	31
2,308	2,095	360	3,092	378	991	60	306	1,862	124	13,453	32
2,292	2,086	350	3,045	379	986	60	299	1,870	124	13,477	33
2,265	2,051	353	3,004	373	983	61	292	1,881	132	13,395	34
2,236	2,060	362	3,000	379	997	61	295	1,875	129	13,473	35
2,254	2,089	366	3,070	375	996	63	303	1,896	134	13,631	36
2,262	2,122	375	3,126	389	1,022	65	308	1,905	136	13,730	37
2,311	2,136	375	3,170	411	1,025	64	308	1,904	136	13,954	38
2,338	2,150	376	3,218	419	1,031	65	310	1,918	135	14,061	39
766	429	65	909	28	398	2	161	201	5	2,496	40
770	425	63	910	28	388	2	166	201	6	2,469	41
769	437	62	913	28	369	3	172	201	6	2,487	42
791	441	61	894	28	373	3	168	198	6	2,481	43
788	410	61	894	28	369	3	167	193	6	2,411	44
772	400	59	883	28	365	3	161	205	6	2,350	45
752	402	62	870	26	361	4	160	190	6	2,257	46
745	406	62	858	27	369	4	161	188	6	2,358	47
761	424	58	901	27	373	4	162	202	6	2,452	48
772	435	60	921	29	402	3	164	206	6	2,557	49
774	441	60	929	29	399	3	169	212	6	2,579	50
804	447	59	924	30	406	2	169	215	6	2,719	51
85	45	49	130	8	37	3	4	47	5	140	52
84	43	50	137	8	36	3	4	47	5	151	53
85	45	51	134	8	36	3	4	47	5	143	54
88	44	49	133	8	35	3	4	47	5	143	55
90	47	49	136	8	36	3	4	47	5	142	56
91	51	51	136	8	37	3	5	46	5	146	57
96	50	51	141	8	39	3	4	57	5	146	58
92	50	59	143	8	38	3	4	45	5	148	59
93	50	49	142	8	37	3	4	45	5	144	60
94	49	50	138	8	38	3	4	49	5	144	61
97	50	50	137	8	39	3	5	49	5	149	62
97	52	42	137	8	38	3	30	192	9	1,186	64
182	167	20	221	64	67	5	49	231	14	1,490	65
273	254	26	291	77	113	6	209	1,003	76	5,014	66
1,390	1,316	280	1,843	175	718	41	121,471	\$431,542	\$26,637	\$24,849,475	67
\$1,063,610	\$1,537,118	\$70,920	\$2,759,995	\$213,995	\$683,731	\$19,199	\$13,459	\$64,505	\$8,782	\$992,943	68
\$93,584	\$132,066	\$16,112	\$179,633	\$38,977	\$60,941	\$5,464	\$3,303	\$23,873	\$2,532	\$255,813	69
\$38,654	\$35,084	\$5,575	\$48,843	\$8,860	\$17,940	\$1,496	\$93,721	\$243,506	\$10,803	\$16,541,715	70
\$729,855	\$1,121,766	\$41,236	\$1,986,989	\$156,998	\$476,117	\$10,729	\$10,988	\$99,658	\$4,520	\$7,059,004	71
\$201,517	\$248,202	\$7,997	\$544,530	\$9,160	\$128,733	\$1,510	\$148,256	\$951,200	\$49,468	\$18,405,984	72
\$1,664,372	\$1,673,516	\$155,821	\$3,294,372	\$269,289	\$906,210	\$32,908	\$115,184	\$800,514	\$41,595	\$15,549,446	73
\$1,312,339	\$1,414,617	\$132,064	\$2,907,787	\$206,920	\$765,041	\$26,140	2,413,695	18,900,492	447,175	360,714,782	74
33,704,654	35,915,275	1,430,732	94,736,530	3,248,334	13,600,863	245,343	\$64,829	\$510,542	\$17,950	\$7,415,944	75
\$782,454	\$837,442	\$54,844	\$2,183,453	\$117,828	\$378,317	\$11,924	-----	-----	-----	-----	76
5,164,314	4,932,037	69,960	12,930,793	20,300	1,670,187	-----	129,500	554,315	2,590	150,803,693	77
\$163,842	\$192,178	\$3,293	\$431,163	\$1,015	\$52,246	-----	\$3,654	\$27,208	\$161	\$5,935,567	78
\$13,953	\$23,851	\$995	\$36,880	-----	\$2,018	\$100	\$1,292	\$7,882	\$243	\$1,038,881	79
\$352,090	\$361,146	\$72,932	\$256,291	\$88,077	\$332,460	\$14,116	\$45,409	\$254,882	\$23,241	\$1,159,054	80
\$52,476	\$57,238	\$5,228	\$92,691	\$6,254	\$20,781	\$1,053	\$4,220	\$28,325	\$1,118	\$600,761	81
\$56,327	\$52,015	\$4,106	\$66,280	\$8,183	\$34,243	\$1,911	\$4,510	\$34,516	\$2,580	\$234,440	82
\$32,950	\$51,848	\$3,477	\$42,430	\$16,036	\$11,608	\$1,252	\$7,135	\$29,979	\$1,580	\$337,969	83
\$11,402	\$9,401	\$963	\$13,956	\$1,396	\$2,451	\$240	\$898	\$6,392	\$399	\$98,186	84
\$173,403	\$72,956	\$6,601	\$148,835	\$21,301	\$43,277	\$994	\$13,736	\$43,282	\$2,001	\$1,533,759	85
\$25,475	\$15,441	\$3,382	\$22,393	\$9,199	\$28,809	\$1,318	\$2,573	\$8,192	\$195	\$51,423	86
\$6,930,000	\$7,699,229	\$800,226	\$13,151,163	\$1,367,891	\$3,701,765	\$252,897	\$714,455	\$4,488,372	\$279,858	\$85,756,740	87
\$5,643,790	\$6,138,869	\$543,774	\$11,930,393	\$1,052,309	\$2,803,210	\$192,057	\$521,747	\$3,435,585	\$180,661	\$71,634,706	88
\$3,264,306	\$3,781,029	\$297,860	\$7,215,340	\$608,807	\$1,579,277	\$129,776	\$230,643	\$97,784	\$38,795,933	\$32,838,773	89
\$2,279,484	\$2,357,840	\$245,914	\$4,715,053	\$443,502	\$1,223,933	\$62,281	\$240,861	\$1,132,942	\$82,877	-----	90

TABLE 80.—NEWSPAPERS AND PERIODICALS—DETAILED

	Kansas.	Kentucky.	Louisiana.	Maine.	Maryland.	Massachu- setts.
Products—Continued.						
90 Book and pamphlet publications.....	\$13,244	\$17,383	\$1,000	\$20,740	\$164,050	\$1,620,660
91 Sheet music and books of music.....	\$10,665					\$1,884
92 Job printing.....	\$680,143	\$344,503	\$233,509	\$353,803	\$292,700	\$1,921,285
93 Bookbinding.....	\$11,000	\$1,510	\$1,560	\$250	\$4,000	\$319,054
94 Blank books.....	\$8,560	\$150		\$110	\$375	\$1,000
95 Electrotyping, engraving, etc.....		\$3,713				\$78,580
96 All other products.....	\$18,021	\$48,860	\$404	\$2,125	\$9,404	\$153,120
97 Number of publications, aggregate.....	722	327	189	158	195	566
By period of issue—						
98 Daily, total.....	5	10	8		4	9
99 Morning.....	5	7	5		1	8
100 Evening.....		3	3		3	1
101 Daily, except Sunday, total.....	60	24	17	17	16	20
102 Morning.....	1	7	2	6	7	13
103 Evening.....	59	17	15	11	9	67
104 Weekly.....	600	230	143	94	140	316
105 Semiweekly.....	14	19	5	5	2	4
106 Triweekly.....	2	2		1		1
107 Monthly.....	35	34	10	37	22	117
108 Quarterly.....	2	4	1	1	6	27
109 All other.....	4	4	5	3	5	12
By character—						
110 News, politics, and family reading.....	667	248	160	112	142	341
111 Religious.....	6	29	13	3	13	71
112 Agricultural, horticultural, dairying, stock raising, etc.....	7	8	8	4	3	6
113 Commerce, finance, insurance, railroad, etc.....	1	4	2	3	8	13
114 Trade journals generally.....	10	10	4		7	30
115 General literature, including monthly and quarterly magazines.....	3	1		23	1	22
116 Medicine and surgery.....	1	4	1	1	5	3
117 Law.....	1	2	1			1
118 Science and mechanics.....					2	8
119 Fraternal organizations.....	13	11	3	4	5	9
120 Education and history.....	5	1		1	2	14
121 Society, art, music, fashion, etc.....	1		1	1	1	13
122 College and school periodicals.....	1	3	1	2	1	7
123 Miscellaneous.....	6	6		4	10	28
By language—						
124 Arabic.....						3
125 Armenian.....					1	
126 Bohemian.....						
127 Bohemian and English.....						
128 Chinese.....						
129 Dutch.....						
130 English.....	712	322	182	155	183	535
131 Finnish.....						2
132 French.....			4	2		10
133 French and English.....				1		1
134 Gaelic.....						
135 Gaelic and English.....						
136 German.....	8	5	2		7	9
137 German and English.....						
138 German and Hebrew.....						
139 Greek.....						
140 Hebrew.....					1	
141 Hungarian.....						
142 Indian and English.....						
143 Italian.....			1			1
144 Italian and English.....						
145 Japanese.....						
146 Lithuanian.....					3	
147 Polish.....						
148 Portuguese.....						2
149 Scandinavian.....	2					3
150 Slavonic, not specified.....						
151 Spanish.....						
152 Spanish and English.....						
153 Syrian.....						
154 Welsh.....						
155 All others.....						
Circulation (average per issue):						
156 Daily.....	156,097	163,291	140,525	74,287	294,151	1,458,967
157 Weekly.....	1,015,146	466,926	172,949	209,961	233,501	1,475,984
158 Semiweekly.....	38,892	37,458	18,885	24,990	16,175	36,525
159 Triweekly.....	3,632	3,600		450		1,500
160 Monthly.....	319,425	142,550	16,216	6,622,541	123,150	4,374,209
161 Quarterly.....	13,350	21,500	1,000	1,600	22,890	445,581
162 All other classes.....	7,445	123,995	8,575	1,275	4,000	396,003
163 Total foreign circulation.....	6,693	1,949	339	26,942	3,231	206,366
164 Canada.....	4,338	1,136	50	26,726	392	183,909
Power:						
165 Number of establishments reporting.....	293	143	53	89	80	243
166 Total horsepower.....	1,228	1,856	895	1,017	1,387	7,375
Owned—						
Engines—						
167 Steam—						
168 Number.....	15	17	10	25	32	50
Horsepower.....	151	630	325	382	738	2,323
Gas and gasoline—						
169 Number.....	229	91	35	22	35	47
170 Horsepower.....	666	303	118	89	94	234
Water wheels—						
171 Number.....		3		3		7
172 Horsepower.....		8		65		27
Water motors—						
173 Number.....	19	10	1	14	3	15
174 Horsepower.....	65	26	2	47	9	48
Electric motors—						
175 Number.....	7	34		5	34	81
176 Horsepower.....	9	466		49	100	508
Other power, horsepower.....					4	
Rented—						
Electric motors—						
178 Number.....	88	66	64	52	41	518
179 Horsepower.....	312	418	450	353	442	4,189
180 Other kind, horsepower.....	25	5		32		46
181 Furnished to other establishments, horsepower.....		240		7	12	44

PRINTING AND PUBLISHING.

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SUMMARY, BY STATES AND TERRITORIES: 1905—Continued.

Michigan.	Minnesota.	Mississippi.	Missouri.	Montana.	Nebraska.	Nevada.	New Hampshire.	New Jersey.	New Mexico.	New York.
\$71,123	\$124,181	\$5,829	\$140,725		\$41,064	\$420	\$8,300	\$23,674	\$295	\$8,838,847
\$1,110,776	\$1,180,973	\$25	\$908,130	\$208,327	\$828,291	\$60,320	\$176,856	\$800,515	\$98,302	\$26,991
\$57,672	\$39,230	\$3,000	\$14,105	\$2,270	\$8,500		\$3,039	\$8,825	\$50	\$4,060,772
\$13,115	\$73,438	\$105	\$17,875	\$6,252	\$973		\$100	\$3,000	\$50	\$188,990
\$28,892	\$52,493		\$21				\$629	\$1,454		\$37,824
\$104,632	\$90,045	\$1,349	\$139,914	\$8,733	\$21,677	\$100	\$3,784	\$15,289	\$500	\$197,464
775	788	203	1,009	96	628	31	124	376	59	\$771,146
12	10	4	23	5	8			2	1	36
10	8	3	13	5	5			1	1	23
2	2	1	10		3			1		13
74	41	10	69		23			53	5	181
6	8		11	7	5	9	14	12		42
58	33	10	58	7	18	3	2	41	5	139
570	634	176	731	69	535	6	12	275	53	989
26	7	4	19	7	15	20	104	4		53
74					3					10
74	71	6	133	5	39		1	37		521
11	5		15				4	3		53
	20	3	19	3	5		1	2		54
654	645	184	774	86	556	31	119	315	52	994
24	23	11	76	4	18		2	11	1	108
14	22	2	17		10			2	1	27
11	11		13		3			4		115
10	21		29		11			3	2	173
10	10	2	15		2		1	6		113
8	5	1	22		1					40
6	3		8		2			1		14
1	2		1		1			4		28
16	14	1	15	2	9		1	12		55
5	2	1	3	2	2			1		30
	4		4		1			2	1	75
7	11		5		6		1	5	1	24
20	15	1	27					10	1	101
										3
	1		1		7					125
			1		1					4
										127
10								3		3
726	711	203	963	94	596	31	120	341	47	1,739
7										1
3	1						4			131
										4
										132
										1
										133
										2
										134
13	25		29	1	18			23		57
1			2					1		5
			11							2
										137
										2
										138
										3
										139
										6
										140
										3
										141
										142
								5		16
										143
										144
										3
6	1		1					1		5
										146
6	43		1		6			1		9
1				1						6
								1	9	11
									3	151
										152
										2
										153
										2
										154
										155
549,383	457,833	22,443	1,136,174	59,511	180,126	6,930	51,834	297,929	7,975	4,695,885
774,758	1,151,145	167,903	1,814,457	75,463	861,840	11,435	146,390	429,464	38,865	5,475,689
91,139	63,396	4,050	590,203	11,200	21,530	1,175		4,575		167,587
8,200					3,200		1,700			195,210
1,372,519	956,696	7,725	3,365,168	7,700	399,444		64,500	336,129		28,217,126
67,500	31,400		191,948					2,525		909,317
43,212	252,647	7,300	149,555	10,500	302,734		800	4,200		179,515
43,502	25,319	63	37,365	893	5,533	9	1,739	4,079	1,017	1,042,438
34,809	18,110		23,543	539	1,761	3	1,262	2,794	34	368,190
102	381	46	364	51	224	14	54	221	20	784
3,529	3,080	214	5,305	422	1,215	62	510	2,339	98	13,136

TABLE 80.—NEWSPAPERS AND PERIODICALS—DETAILED

		North Caro- lina.	North Da- kota.	Ohio.	Oklahoma.	Oregon.	Pennsyl- vania.
1	Number of establishments.....	203	219	944	244	186	1,136
2	Capital, total.....	\$1,002,726	\$972,375	\$14,060,738	\$1,113,933	\$1,074,313	\$28,073,734
3	Land.....	\$60,945	\$74,050	\$841,729	\$79,030	\$39,000	\$2,865,202
4	Buildings.....	\$99,950	\$176,368	\$1,616,743	\$148,924	\$58,425	\$4,032,657
5	Machinery, tools, and implements.....	\$484,672	\$478,368	\$6,493,713	\$612,556	\$688,337	\$10,672,164
6	Cash and sundries.....	\$357,159	\$243,589	\$5,108,553	\$273,423	\$288,551	\$10,503,711
7	Proprietors and firm members.....	207	230	883	275	184	1,149
8	Salaried officials, clerks, etc.:.....						
9	Total number.....	199	60	2,857	107	230	4,159
10	Total salaries.....	\$134,858	\$52,786	\$2,460,209	\$81,118	\$277,932	\$4,062,962
11	Officers of corporations—						
12	Number.....	33	13	194	13	12	191
13	Salaries.....	\$32,533	\$14,281	\$325,552	\$15,596	\$25,320	\$561,227
14	General superintendents, managers, clerks, etc.—						
15	Total number.....	166	47	2,663	94	218	3,968
16	Total salaries.....	\$102,325	\$38,505	\$2,134,657	\$65,522	\$252,612	\$3,501,735
17	Men—						
18	Number.....	130	41	2,056	72	184	3,255
19	Salaries.....	\$91,586	\$36,331	\$1,887,097	\$56,318	\$236,080	\$3,176,295
20	Women—						
21	Number.....	36	11	607	22	34	713
22	Salaries.....	\$10,739	\$2,174	\$247,560	\$9,204	\$16,532	\$325,440
23	Wage-earners, including pieceworkers, and total wages:						
24	Greatest number employed at any one time during the year.....	881	516	7,109	922	711	11,648
25	Least number employed at any one time during the year.....	624	428	5,790	684	604	9,214
26	Average number.....	703	452	6,197	724	633	10,123
27	Total wages.....	\$289,332	\$270,074	\$3,507,148	\$363,357	\$474,018	\$5,869,725
28	Men 16 years and over—						
29	Average number.....	577	364	4,767	541	503	8,046
30	Wages.....	\$267,715	\$241,420	\$3,126,656	\$309,401	\$431,135	\$5,252,840
31	Women 16 years and over—						
32	Average number.....	53	67	1,343	150	116	1,790
33	Wages.....	\$11,009	\$25,015	\$368,109	\$48,220	\$40,267	\$574,326
34	Children under 16 years—						
35	Average number.....	73	21	87	33	14	287
36	Wages.....	\$10,608	\$3,639	\$12,383	\$5,736	\$2,616	\$42,559
37	Average number of wage-earners, including pieceworkers, employed dur- ing each month:						
38	Men 16 years and over—						
39	January.....	572	365	4,775	543	498	8,078
40	February.....	577	355	4,716	545	491	8,093
41	March.....	578	357	4,733	555	489	8,052
42	April.....	580	355	4,728	539	493	8,041
43	May.....	575	356	4,714	531	498	8,094
44	June.....	574	361	4,729	512	499	7,983
45	July.....	554	338	4,737	506	491	7,892
46	August.....	558	344	4,716	515	497	7,870
47	September.....	574	384	4,782	541	512	7,949
48	October.....	590	389	4,805	574	511	8,119
49	November.....	596	385	4,849	561	524	8,157
50	December.....	596	379	4,920	570	533	8,224
51	Women 16 years and over—						
52	January.....	49	70	1,437	149	116	1,931
53	February.....	52	70	1,365	151	114	1,865
54	March.....	50	62	1,345	156	113	1,847
55	April.....	50	62	1,321	151	114	1,847
56	May.....	52	66	1,286	151	115	1,754
57	June.....	54	65	1,272	149	114	1,695
58	July.....	55	67	1,276	141	115	1,588
59	August.....	57	67	1,267	141	116	1,619
60	September.....	58	69	1,355	141	114	1,695
61	October.....	55	69	1,375	149	118	1,744
62	November.....	54	69	1,393	157	120	1,888
63	December.....	50	68	1,424	164	123	2,007
64	Children under 16 years—						
65	January.....	72	21	82	32	15	282
66	February.....	72	21	84	31	14	281
67	March.....	73	21	86	31	14	281
68	April.....	75	21	86	33	14	283
69	May.....	76	21	86	35	14	285
70	June.....	76	21	93	31	15	287
71	July.....	72	21	93	33	15	291
72	August.....	73	21	91	33	14	292
73	September.....	74	21	89	35	14	287
74	October.....	75	21	82	35	13	288
75	November.....	65	21	82	34	13	292
76	December.....	73	21	90	33	13	295
77	Typecasting and typesetting machines used, number.....	41	23	461	19	31	738
78	Operators of typecasting or typesetting machines (included in wage- earners).....	50	34	570	27	82	958
79	Hand compositors (included in wage-earners).....	353	281	2,588	439	321	3,595
80	Miscellaneous expenses, total.....	\$155,902	\$104,811	\$3,183,466	\$258,265	\$265,553	\$5,521,915
81	Rent of works.....	\$17,298	\$20,121	\$208,753	\$20,046	\$39,360	\$417,428
82	Taxes.....	\$6,540	\$7,708	\$77,447	\$9,307	\$7,385	\$57,950
83	Rent of offices, interest, insurance, and all other sundry expenses not hitherto included.....	\$87,542	\$69,918	\$2,212,577	\$203,573	\$168,297	\$3,817,081
84	Contract work.....	\$44,522	\$7,064	\$684,689	\$25,339	\$50,511	\$1,199,456
85	Materials used, aggregate cost.....	\$263,807	\$185,837	\$3,839,218	\$306,593	\$380,033	\$8,298,205
86	Paper, total cost.....	\$226,881	\$147,669	\$3,232,422	\$247,785	\$325,759	\$7,044,130
87	For newspapers—						
88	Pounds.....	3,781,985	1,797,790	82,561,378	4,594,060	7,355,078	189,369,791
89	Cost.....	\$106,049	\$66,562	\$1,807,086	\$128,305	\$225,789	\$4,288,022
90	For periodicals—						
91	Pounds.....	673,676	45,420	22,615,412	67,650	464,650	39,167,222
92	Cost.....	\$28,993	\$2,053	\$778,844	\$3,036	\$25,210	\$1,717,661
93	For books and periodicals.....	\$128	\$2,495	\$97,477	\$1,300	\$914	\$252,308
94	For job printing.....	\$91,711	\$76,559	\$549,015	\$115,144	\$73,846	\$786,139
95	Ink.....	\$7,412	\$5,029	\$131,121	\$7,516	\$11,002	\$273,727
96	Rent of power and heat.....	\$11,024	\$10,881	\$95,613	\$16,982	\$7,187	\$159,843
97	Mill supplies.....	\$6,978	\$4,233	\$61,440	\$4,964	\$9,478	\$127,244
98	All other materials.....	\$2,263	\$1,610	\$23,466	\$1,218	\$2,847	\$40,907
99	Freight.....	\$4,670	\$8,136	\$259,994	\$13,473	\$22,822	\$606,350
100	Products, aggregate value.....	\$4,579	\$8,279	\$35,162	\$14,655	\$938	\$46,004
101	Newspapers and periodicals, total.....	\$1,262,023	\$952,233	\$16,408,377	\$1,348,959	\$1,909,395	\$30,294,171
102	Advertising.....	\$981,635	\$647,675	\$13,840,238	\$769,591	\$1,681,290	\$25,868,657
103	Subscriptions and sales.....	\$499,000	\$421,625	\$7,585,208	\$471,465	\$1,024,515	\$15,223,742
104		\$482,635	\$226,050	\$6,255,030	\$298,126	\$656,775	\$10,644,915

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Rhoda Island.	South Carolina.	South Dakota.	Tennessee.	Texas.	Utah.	Vermont.	Virginia.	Washington.	West Virginia.	Wisconsin.	Wyoming.
48	127	272	260	709	74	64	196	272	185	595	44
\$1,363,323	\$685,510	\$1,218,472	\$3,437,575	\$4,155,786	\$795,850	\$902,251	\$1,464,811	\$1,847,698	\$1,476,374	\$5,043,464	\$242,186
\$230,950	\$37,250	\$96,413	\$236,895	\$20,808	\$20,650	\$27,925	\$82,560	\$78,780	\$93,670	\$208,311	\$9,020
\$133,800	\$13,545	\$95,245	\$459,833	\$540,385	\$42,325	\$71,650	\$122,170	\$100,000	\$209,960	\$531,060	\$31,450
\$371,830	\$474,040	\$10,306	\$1,311,719	\$2,134,245	\$338,079	\$432,240	\$740,526	\$1,038,509	\$765,244	\$2,489,131	\$127,645
\$426,743	\$220,675	\$416,508	\$1,429,128	\$1,274,288	\$394,796	\$170,416	\$519,555	\$630,409	\$407,500	\$1,814,962	\$74,071
31	133	296	294	801	62	56	190	266	182	645	35
276	184	01	529	596	203	102	305	521	142	827	28
\$188,180	\$135,443	\$71,782	\$514,926	\$530,110	\$202,489	\$87,781	\$214,955	\$423,718	\$110,034	\$688,764	\$31,308
17	12	15	30	48	4	11	41	13	12	79	10
\$38,968	\$22,170	\$14,140	\$63,500	\$89,925	\$4,920	\$7,160	\$52,890	\$32,000	\$19,740	\$114,958	10
259	172	76	499	548	199	96	264	508	130	748	28
\$149,212	\$113,273	\$57,642	\$451,426	\$440,185	\$197,569	\$80,621	\$162,065	\$391,718	\$90,294	\$573,806	\$31,308
231	156	56	385	478	168	77	201	444	117	581	26
\$133,728	\$108,203	\$48,715	\$394,281	\$405,654	\$180,633	\$70,731	\$143,104	\$360,431	\$84,910	\$512,711	\$29,918
28	16	20	114	70	31	19	63	64	13	167	2
\$15,484	\$5,070	\$8,927	\$57,145	\$34,531	\$16,936	\$9,890	\$18,961	\$31,287	\$5,384	\$61,095	\$1,390
604	584	636	1,532	2,545	398	498	903	1,383	862	3,076	144
419	440	502	1,244	2,082	323	418	770	1,124	720	2,561	97
539	471	537	1,361	2,222	350	444	824	1,189	751	2,726	110
\$308,337	\$206,474	\$276,721	\$704,855	\$1,347,723	\$252,342	\$202,940	\$384,762	\$914,566	\$386,913	\$1,366,340	\$70,820
551	391	377	1,076	1,936	297	289	700	1,080	519	1,992	83
\$288,547	\$189,712	\$224,136	\$635,431	\$1,281,275	\$234,494	\$151,079	\$361,474	\$875,852	\$331,369	\$1,177,005	\$66,566
44	44	146	244	163	43	149	76	97	192	669	24
\$17,268	\$11,951	\$50,120	\$63,320	\$47,871	\$16,601	\$50,943	\$17,061	\$36,526	\$49,752	\$180,552	\$9,548
14	06	14	41	123	10	6	48	12	40	65	3
\$2,522	\$4,811	\$2,465	\$6,104	\$18,577	\$1,247	\$918	\$6,227	\$2,188	\$5,792	\$8,783	\$656
380	396	380	1,038	1,927	296	299	696	1,076	511	1,989	77
503	396	379	1,064	1,908	291	300	694	1,050	503	1,965	79
500	394	375	1,082	1,922	288	296	697	1,058	512	1,979	80
500	384	365	1,076	1,905	284	296	708	1,060	512	1,968	80
496	381	361	1,075	1,922	287	288	700	1,065	516	1,983	83
498	385	367	1,085	1,947	285	281	698	1,063	507	1,985	85
50											

TABLE 80.—NEWSPAPERS AND PERIODICALS—DETAILED

	North Caro- lina.	North Da- kota.	Ohio.	Oklahoma.	Oregon.	Pennsyl- vania.
Products—Continued.						
90 Book and pamphlet publications.....	\$4,575	\$3,285	\$439,694	\$4,177	\$3,205	\$1,279,158
91 Sheet music and books of music.....			\$32,000			\$40
92 Job printing.....	\$267,347	\$267,237	\$1,811,313	\$488,630	\$204,968	\$2,718,722
93 Bookbinding.....	\$5,000	\$7,855	\$79,901	\$82,312	\$3,150	\$154,989
94 Blank books.....	\$100	\$8,795	\$17,380	\$710	\$1,000	\$18,175
95 Electrotyping, engraving, etc.....	\$200		\$73,241		\$13,292	\$25,317
96 All other products.....	\$3,166	\$17,386	\$114,610	\$3,539	\$2,400	\$229,113
97 Number of publications, aggregate.....	232	233	1,229	278	213	1,452
By period of issue—						
98 Daily, total.....	8	2	21	5	8	22
99 Morning.....	8	2	15	5	7	17
100 Evening.....			6	2	1	5
101 Daily, except Sunday, total.....	22	7	169	24	15	198
102 Morning.....	2		23	2	2	39
103 Evening.....	20	7	146	22	13	159
104 Weekly.....	157	212	783	239	152	892
105 Semiweekly.....	21	3	46	1	18	44
106 Triweekly.....			7			3
107 Monthly.....	15	6	143	7	16	212
108 Quarterly.....	3	1	40			60
109 All other.....	6	2	20	2	4	16
By character—						
110 News, politics, and family reading.....	188	223	905	259	177	1,010
111 Religious.....	19		149	4	7	203
112 Agricultural, horticultural, dairying, stock raising, etc.....	4	2	9	6	6	18
113 Commerce, finance, insurance, railroad, etc.....			18	1	5	28
114 Trade journals generally.....	11		33	1	2	46
115 General literature, including monthly and quarterly magazines.....		1	10		2	19
116 Medicine and surgery.....	2		14	1	1	18
117 Law.....			6	1	1	13
118 Science and mechanics.....			4			5
119 Fraternal organizations.....	3	3	32		10	28
120 Education and history.....	1	2	7	1		6
121 Society, art, music, fashion, etc.....			6			6
122 College and school periodicals.....	2	1	8		1	16
123 Miscellaneous.....	2	1	28	3	1	36
By language—						
124 Arabic.....						
125 Armenian.....						
126 Bohemian.....						
127 Bohemian and English.....			3			
128 Chinese.....						
129 Dutch.....						
130 English.....	232	224	1,124	275	206	1,856
131 Finnish.....			1		2	
132 French.....						3
133 French and English.....						
134 Gaelic.....						
135 Gaelic and English.....			16			
136 German.....		3	73	3	3	51
137 German and English.....		1	1			1
138 German and Hebrew.....						
139 Greek.....						
140 Hebrew.....			2			2
141 Hungarian.....			1			1
142 Indian and English.....			1			
143 Italian.....			1			8
144 Italian and English.....						
145 Japanese.....					1	
146 Lithuanian.....			1			8
147 Polish.....			2			7
148 Portuguese.....						
149 Scandinavian.....		4	1		1	2
150 Slavonic, not specified.....			2			9
151 Spanish.....						1
152 Spanish and English.....						
153 Syrian.....						
154 Welsh.....						
155 All others.....						
Circulation (average per issue):						
156 Daily.....	65,753	21,472	1,376,460	57,224	92,914	3,676,999
157 Weekly.....	263,091	175,513	2,766,811	236,009	172,795	5,325,741
158 Semiweekly.....	38,909	5,060	96,214	7,000	27,530	449,575
159 Triweekly.....			17,535			17,764
160 Monthly.....	30,750	19,630	2,006,287	23,740	81,400	4,385,686
161 Quarterly.....	125,500	7,500	2,169,200			3,758,107
162 All other classes.....	80,600	7,000	383,247	25,000	5,850	154,225
163 Total foreign circulation.....	439	3,270	46,225	1,076	5,530	148,946
164 Canada.....	96	2,717	35,306	268	4,273	119,704
Power:						
165 Number of establishments reporting.....	75	102	591	102	77	776
166 Total horsepower.....	466	336	7,545	444	723	15,204
Owned—						
Engines—						
Steam—						
167 Number.....	10	4	89	4	8	197
168 Horsepower.....	131	32	2,446	110	195	5,274
Gas and gasoline—						
169 Number.....	40	91	367	87	24	361
170 Horsepower.....	116	233	1,807	215	65	2,698
Water wheels—						
171 Number.....			2		2	5
172 Horsepower.....			8		5	60
Water motors—						
173 Number.....	3	1	25		27	72
174 Horsepower.....	9	4	110		64	231
Electric motors—						
175 Number.....	5		209	2	1	365
176 Horsepower.....	47		1,034	25	5	2,308
177 Other power, horsepower.....	10					
Rented—						
Electric motors—						
178 Number.....	38	28	501	34	80	800
179 Horsepower.....	153	67	2,081	94	389	4,474
180 Other kind, horsepower.....			59			159
181 Furnished to other establishments, horsepower.....	6		14			67

PRINTING AND PUBLISHING.

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SUMMARY, BY STATES AND TERRITORIES: 1905—Continued.

Rhode Island.	South Caro- lina.	South Da- kota.	Tennessee.	Texas.	Utah.	Vermont.	Virginia.	Washing- ton.	West Vir- ginia.	Wisconsin.	Wyoming.	
\$12,952	\$15,900	\$13,400	\$245,310	\$3,868	\$41,280	\$3,800	\$16,910	\$2,560	\$14,167	\$196,530		90
\$88,206	\$107,512	\$310,365	\$2,105	\$927,731	\$132,731	\$187,653	\$4,000			\$ 0,400		91
\$6,750	\$6,750	\$5,605	\$372,004	\$2,308	\$15,000	\$24,500	\$218,372	\$441,618	\$311,773	\$1,177,584	\$75,517	92
\$2,175	\$2,175	\$7,000	\$64,348	\$20	\$2,800	\$11,000	\$12,250	\$5,100	\$10,400	\$45,520		93
\$27			\$3,953	\$1,250	\$833		\$8,748	\$50	\$13,025	\$14,155	\$240	94
\$8,613	\$1,402	\$16,721	\$79,120	\$11,528	\$5,015	\$4,978	\$405	\$100	\$475	\$18,775		95
57	143	297	\$11,528	\$52,852	85	100	\$2,757	\$14,539	\$3,420	\$73,904	\$3,475	96
5	5	5	323	797			231	307	216	702	49	97
1	4	4	9	20	4		10	9	6	9	2	98
2	1	1	6	11	3		10	7	5	8	1	99
10	9	11	3	8	1		2	2	1	1	1	100
2			67	7	6	10	21	20	27	56	2	101
8	9	11	2	6	7	3	4	3	6	2		102
29	104	263	60	629	5	7	17	17	21	54	2	103
4	16	5	230	18	57	82	149	226	166	538	36	104
			3		6		7	7	4	37	6	105
10	6	11		54	1		1					106
1	1		33	1	7	7	30	42	9	52	3	107
	2	2	11	8	1		10			5		108
40					3	1	3	3	4	5		109
5	125	282	208	695	68	90	167	244	198	610	46	110
	3	3	75	23	6	1	36	10	7	19		111
1		1	6	15	3	1	4	11	1	11		112
			6	6	2		2	8		2		113
			6	8				1	1	13		114
			7	6	1	3	1	2	1	10	1	115
							4			4		116
					1		2	1	1			117
3	1	6	8	11	1	3	7	9	3	10	1	118
	1	2	4	3	2		2	1	1	4		119
1			1	4	1		1	1				120
2	1	2	2	3	1	1	2	4	1	4	1	121
			13		1		3	8	2	15		122
												123
				3						6		124
												125
												126
												127
												128
51	143	288	221	766	80	100	227	292	213	592	49	129
												130
												131
												132
												133
												134
1		6	3	24	2		4	4	3	81		135
								1		2		136
												137
												138
			1									139
												140
												141
												142
												143
										1		144
								1				145
												146
										6		147
								4				148
		3		1	3			5		12		149
				3								150
												151
												152
												153
												154
												155
163,326	32,689	21,553	184,912	249,355	44,141	35,846	131,062	189,735	76,514	309,390	6,936	156
39,542	138,539	198,604	753,290	834,434	65,742	122,049	352,856	217,845	213,975	902,467	28,060	157
6,719	28,401	6,850	8,720	227,909	38,652		16,500	85,811	7,635	194,230	7,677	158
					1,600		500					159
20,638	7,918	58,600	247,143	211,929	30,000	15,900	167,448	118,491	14,620	500,046	13,750	160
250	5,000		1,760,021	3,500	150		150,000			23,350		161
	4,400	33,391	79,674	16,400	15,500	650	4,300	16,400	7,000	24,347		162
880	369	2,887	1,490	6,659	2,020	726	3,714	3,352	863	33,482	53	163
610	15	1,871	453	188	822	622	539	3,053	361	30,967	27	164
												165
24	55	122	80	307	26	51	81	96	103	373	20	166
530	236	369	1,313	2,301	175	331	676	1,631	1,022	3,787	87	167
												168
0	7		21	16		5	16	4	14	24	2	169
253	38		720	632		47	99	107	73	302	9	170
												171
2	33	110	43	214	8	13	28	28	68	230	17	172
9	99	304	135	515	18	61	91	64	688	709	44	173
												174
			1			1		4	1	2	1	175
			1			5		45	3	6	2	176
												177
4	1	4	10			15	8	20	23	38	4	178
4	3	8	102			64	30	75	101	102	10	179
												180
4			1	72			1		3	11		181
30			15	253			30		9	180		182
	8					1						183
												184
24	24	17	48	161	52	55	68	173	24	252	10	185
205	88	57	340	898	157	153	423	1,340	148	2,232	22	186
				3			3			256		187
			1	4		3				27		188

PENS AND PENCILS

PENS AND PENCILS.

This report on the manufacture of pens and pencils presents combined and separate statistics for four classifications of industries, namely, pens, fountain and stylographic; pens, gold; pens, steel; and pencils, lead. The statistics for pens include data for the varieties named, and also for all other varieties of metal pens, and aluminum and other attachments; while

those for pencils include data for wood-cased lead pencils, and gold, silver, and plated-cased pencils.

THE COMBINED INDUSTRY.

Table 1 is a comparative summary presenting the statistics for the combined industry as reported at the censuses from 1860 to 1905, with the per cent of increase.

TABLE 1.—PENS AND PENCILS—COMPARATIVE SUMMARY, WITH PER CENT OF INCREASE: 1860 TO 1905.

	CENSUS.						PER CENT OF INCREASE.				
	1905 ¹	1900 ²	1890	1880	1870	1860	1900 to 1905	1890 to 1900	1880 to 1890	1870 to 1880	1860 to 1870
Number of establishments.....	62	55	41	23	32	15	12.7	34.1	78.3	³ 28.1	113.3
Capital.....	\$7,101,366	\$3,671,741	\$4,116,247	\$894,247	\$704,400	\$39,150	93.4	³ 10.8	360.3	27.0	1,699.2
Salaried officials, clerks, etc., number.....	579	240	⁴ 165	(⁵)	(⁵)	(⁵)	141.2	45.5			
Salaries.....	\$654,768	\$281,636	⁴ \$254,469	(⁵)	(⁵)	(⁵)	132.5	10.7			
Wage-earners, average number.....	4,661	3,331	2,337	943	659	113	39.9	42.5	147.8	43.1	483.2
Total wages.....	\$1,796,996	\$1,192,405	\$841,924	\$362,940	\$244,706	\$44,148	50.7	41.6	132.0	48.3	454.3
Men 16 years and over.....	2,132	1,401	1,029	376	311	97	52.2	36.2	173.7	20.9	220.6
Wages.....	\$1,122,999	\$718,862	\$570,699	(⁵)	(⁵)	(⁵)	56.2	26.0			
Women 16 years and over.....	2,287	1,562	1,001	393	320	16	46.4	56.0	154.7	22.8	1,900.0
Wages.....	\$625,848	\$393,289	\$224,312	(⁵)	(⁵)	(⁵)	59.1	75.3			
Children under 16 years.....	242	368	307	174	28		³ 34.2	19.9	76.4	521.4	
Wages.....	\$48,149	\$80,254	\$46,913	(⁵)	(⁵)	(⁵)	³ 40.0	71.1			
Miscellaneous expenses.....	\$1,286,860	\$471,655	\$255,956	(⁵)	(⁵)	(⁵)	172.8	84.3			
Cost of materials used.....	\$3,072,980	\$1,747,852	\$1,211,850	\$327,200	\$289,193	\$43,415	75.8	44.2	270.4	13.1	566.1
Value of products.....	\$7,673,777	\$4,222,148	\$3,025,664	\$976,488	\$827,380	\$134,000	81.8	39.5	209.9	18.0	517.4

¹ Exclusive of the statistics of 2 establishments engaged primarily in the manufacture of other products. These establishments made pens and pencils to the value of \$38,444.

² Exclusive of the statistics of 1 establishment engaged primarily in the manufacture of other products. This establishment made pens and pencils to the value of \$51,214.

³ Decrease.

⁴ Includes proprietors and firm members, with their salaries; number only reported in 1900 and 1905, but not included in this table.

⁵ Not reported separately.

⁶ Not reported.

The industries combined in this table were not all reported in 1860. The 15 establishments shown for that year were engaged in the manufacture of gold pens and lead pencils. The statistics for steel pens were first shown in 1870 and those for fountain and stylographic pens in 1890. Thus all the industries were not represented until 1890.

The value of products includes not only the value of pens and pencils, but also that of the ink and stationers' supplies made by the establishments reporting. Many of the manufacturers of fountain pens do not make the pens from start to finish but purchase the parts and assemble them.

Between 1900 and 1905 the increase in the number of establishments was 7 and that in the value of products \$3,451,629, or 81.7 per cent.

Table 2 shows the principal statistics for 1905, for each of the classifications of which the combined industry is composed.

TABLE 2.—Pens and pencils—summary, by industries: 1905.

	Total.	PENS.			Pencils, lead.
		Fountain and stylo- graphic.	Gold.	Steel.	
Number of establish- ments.....	62	33	16	5	8
Capital.....	\$7,101,366	\$1,097,825	\$446,933	\$575,788	\$4,980,820
Salaried officials, clerks, etc., number.....	579	190	34	72	283
Salaries.....	\$654,768	\$155,967	\$42,287	\$60,487	\$396,027
Wage-earners, average number.....	4,661	624	309	663	3,065
Wages.....	\$1,796,996	\$307,688	\$225,454	\$204,778	\$1,059,076
Miscellaneous expenses.....	\$1,286,860	\$312,372	\$61,407	\$53,011	\$860,070
Cost of materials used.....	\$3,072,980	\$892,206	\$274,235	\$103,005	\$1,803,534
Value of products.....	\$7,673,777	\$2,082,005	\$692,029	\$473,847	\$4,425,896

The value of products reported for the establishments that manufactured products classified as "pencils, lead," constituted 57.7 per cent of the total value for the combined industry; that for establishments producing "pens, fountain and stylographic," 27.1 per cent; that for establishments manufacturing "pens,

gold," 9 per cent; and that for establishments producing "pens, steel," 6.2 per cent.

Products.—Table 3 shows the products of the combined industry, by kind, quantity, and value, for the censuses of 1900 and 1905.

TABLE 3.—*Pens and pencils—products, by kind, quantity, and value, with per cent of increase: 1905 and 1900.*

KIND.	1905	1900	Per cent of increase.
Aggregate value.....	\$7,673,777	\$4,222,148	53.7
Pens, total value.....	\$3,148,736	\$1,855,658	69.7
Fountain—			
Gross.....	29,975	8,028	273.4
Value.....	\$1,898,163	\$902,734	110.3
Stylographic—			
Gross.....	6,280	1,803	248.3
Value.....	\$64,523	\$82,676	122.0
Gold—			
Gross.....	15,716	6,735	133.3
Value.....	\$635,528	\$458,376	38.6
Steel—			
Gross.....	1,823,278	1,764,079	3.4
Value.....	\$506,723	\$411,872	23.0
All other varieties—			
Gross.....	30,207	.....	.....
Value.....	\$43,799	.....	.....
Pencils, lead, total value.....	\$3,182,454	\$2,264,151	40.6
Wood—			
Gross.....	2,179,514	1,653,973	31.8
Value.....	\$2,889,481	\$2,053,484	40.7
Gold, silver, and plated—			
Gross.....	1,543	6,300	175.5
Value.....	\$195,166	\$208,567	6.4
All other varieties—			
Gross.....	46,651	581	7,929.4
Value.....	\$97,807	\$2,100	4,557.5
All other products.....	\$1,342,587	\$101,839	.....

¹ Decrease.

The value of the pens produced was 49.8 per cent of the aggregate value of pens and pencils for 1905, and 45 per cent for 1900.

At the census of 1905, compared with that of 1900, the increase in the value of the fountain pens manufactured was 110.3 per cent. Stylographic pens decreased in value, although the quantity increased.

The production of ordinary lead pencils increased in quantity 525,541 gross, or 31.8 per cent, and in value, \$835,997, or 40.7 per cent. The decrease in the quantity of gold, silver, and plated-cased pencils was 4,757 gross, or 75.5 per cent, while the decrease in the value was \$13,401, or only 6.4 per cent. "All other varieties" increased over seventy-nine fold in quantity and nearly forty-six fold in value.

Imports and exports.—Table 4 shows the value of the imports of pencils and the exports of pens and pencils for each year from 1900 to 1905.

TABLE 4.—*Pens and pencils—value of imports and exports: 1900 to 1905.*¹

YEAR ENDING JUNE 30—	Pens, exports. ²	PENCILS.	
		Exports. ³	Imports.
1905.....	\$130,654	\$289,489	\$507,965
1904.....	62,595	261,671	518,772
1903.....	66,317	186,363	487,290
1902.....	93,426	329,877	356,542
1901.....	95,456	511,659	314,993
1900.....	119,104	463,315	289,008

¹ Bureau of Statistics, Department of Commerce and Labor, "Commerce and Navigation of the United States."

² Includes penholders; imports not shown.

³ Includes slate pencils.

PENS.

Fountain and stylographic.—A summary of the statistics for fountain and stylographic pens, as returned at the censuses of 1900 and 1905, with per cent of increase, is given in Table 5.

TABLE 5.—*Pens, fountain and stylographic—comparative summary, with per cent of increase: 1890 to 1905.*

	CENSUS.			PER CENT OF INCREASE.	
	1905 ¹	1900	1890	1900 to 1905	1890 to 1900
Number of establishments.....	33	23	15	43.5	53.3
Capital.....	\$1,097,825	\$590,629	\$142,265	85.9	315.2
Salaried officials, clerks, etc., number.....	190	84	224	126.2	250.0
Salaries.....	\$155,967	\$80,808	\$28,902	93.0	179.6
Wage-earners, average number.....	624	318	152	96.2	109.2
Total wages.....	\$307,688	\$141,012	\$73,897	118.2	90.8
Men 16 years and over.....	502	241	128	108.3	88.3
Wages.....	\$271,523	\$122,777	\$67,822	121.2	81.0
Women 16 years and over.....	110	66	24	66.6	175.0
Wages.....	\$33,358	\$16,008	\$6,075	108.4	163.5
Children under 16 years.....	12	11	.....	9.1	.....
Wages.....	\$2,807	\$2,227	.....	26.0	.....
Miscellaneous expenses.....	\$312,372	\$113,334	\$12,380	175.6	815.5
Cost of materials used.....	\$892,206	\$351,932	\$123,214	153.5	185.6
Value of products.....	\$2,082,005	\$906,454	\$351,775	129.7	157.7

¹ Exclusive of the statistics of 1 establishment engaged primarily in the manufacture of other products. This establishment made fountain pens to the value of \$600.

² Includes proprietors and firm members, with their salaries; number only reported in 1900 and 1905, but not included in this table.

For most of the items the rates of increase for the census of 1905 as compared with that of 1900 were large, although they were smaller than the corresponding rates for the census of 1900 as compared with that of 1890. The absolute increases, however, were larger in every instance.

Table 6 is a comparative summary showing the number of establishments by states as returned at the censuses of 1900 and 1905.

TABLE 6.—*Pens, fountain and stylographic—number of establishments, by states and geographic divisions: 1905 and 1900.*

STATE AND DIVISION.	1905	1900
United States.....	33	23
North Atlantic division.....	19	16
Connecticut.....	1	2
Massachusetts.....	2	1
Rhode Island.....	1	1
New York.....	12	9
New Jersey.....	1	.....
Pennsylvania.....	2	2
North Central division.....	14	7
Illinois.....	2	.....
Indiana.....	1	1
Iowa.....	.....	1
Ohio.....	8	4
Wisconsin.....	3	1

Between 1900 and 1905 the number of establishments in Ohio increased by 4; the number in New York, by 3; and the number in Wisconsin, by 2. In 1905 there were 2 establishments in Illinois and 1 in New Jersey, states which were not engaged in the manufacture of fountain pens in 1900. The only establishment making pens of this kind in Iowa in 1900 was not reported for 1905, while during the intervening

years the number in Connecticut was reduced by 1; numbers in the other states were not changed.

As shown in Table 7, New York was the leading state in the production of fountain and stylographic pens. Twelve large establishments, all of which were located in Greater New York, were actively engaged in such manufacture for 1905, the value of the output of these pens being \$1,183,336, an increase of \$698,973, or 144.3 per cent over the value reported for 1900. In addition these factories made a large number of gold pens. The entire product of pens was valued at \$1,300,449. Factories making fountain and stylographic pens do not manufacture pencils to any great extent, having produced only a limited number of gold, silver, and plated-cased pencils, the value of which is included with that of "all other products," in order not to disclose the operations of individual establishments.

In Ohio the value of the fountain and stylographic pens was \$163,736, an increase over the value for 1900 of \$146,696, or almost ninefold. The aggregate value of the product of all the establishments making pens and pencils in this state was \$231,762, a gain of \$179,762, or more than threefold.

After New York and Ohio, the leading states in the manufacture of fountain and stylographic pens are Wisconsin, Connecticut, and Pennsylvania. The remaining states in which these pens were manufactured are Illinois, Indiana, Massachusetts, New Jersey, and Rhode Island.

Table 7 is a detailed summary of the fountain and stylographic pen industry, by states, for 1905.

TABLE 7.—*Pens, fountain and stylographic—detailed summary, by states: 1905.*

	United States.	New York.	Ohio.	All other states. ¹
Number of establishments.....	33	12	8	13
Capital, total.....	\$1,097,825	\$518,102	\$136,746	\$442,977
Land.....	\$46,000		\$16,500	\$29,500
Buildings.....	\$72,371		\$10,000	\$62,371
Machinery, tools, and implements.....	\$138,330	\$63,130	\$30,293	\$44,907
Cash and sundries.....	\$841,124	\$454,972	\$79,953	\$306,199
Proprietors and firm members.....	24	7	8	9
Salaries of officials, clerks, etc.:—				
Total number.....	190	111	26	53
Total salaries.....	\$155,967	\$101,710	\$21,364	\$32,893
Officers of corporations—				
Number.....	25	13	5	7
Salaries.....	\$46,400	\$28,300	\$9,500	\$8,600
General superintendents, managers, clerks, etc.—				
Total number.....	165	98	21	46
Total salaries.....	\$109,567	\$73,410	\$11,864	\$24,293
Men—				
Number.....	92	54	9	29
Salaries.....	\$78,306	\$52,282	\$8,380	\$17,644
Women—				
Number.....	73	44	12	17
Salaries.....	\$31,261	\$21,128	\$3,484	\$6,649
Wage-earners, including pieceworkers, and total wages:				
Greatest number employed at any one time during the year.....	708	402	96	210
Least number employed at any one time during the year.....	539	284	85	170
Average number.....	624	348	90	186
Total wages.....	\$307,688	\$160,427	\$41,333	\$105,928
Men 16 years and over—				
Average number.....	502	291	64	147
Wages.....	\$271,523	\$143,301	\$34,525	\$93,697
Women 16 years and over—				
Average number.....	110	57	21	32
Wages.....	\$33,358	\$17,126	\$5,608	\$10,624
Children under 16 years—				
Average number.....	12		5	7
Wages.....	\$2,807		\$1,200	\$1,607

¹ Includes establishments distributed as follows: Connecticut, 1; Illinois, 2; Indiana, 1; Massachusetts, 2; New Jersey, 1; Pennsylvania, 2; Rhode Island, 1; Wisconsin, 3.

TABLE 7. *Pens, fountain and stylographic—detailed summary, by states: 1905—Continued.*

	United States.	New York.	Ohio.	All other states.
Average number of wage-earners, including pieceworkers, employed during each month:				
Men 16 years and over—				
January.....	486	280	66	140
February.....	533	326	67	140
March.....	523	315	62	146
April.....	506	299	62	145
May.....	492	287	62	143
June.....	496	290	62	144
July.....	452	251	62	139
August.....	405	261	62	142
September.....	495	278	62	155
October.....	517	291	67	159
November.....	532	308	67	157
December.....	527	306	67	154
Women 16 years and over—				
January.....	112	57	23	32
February.....	122	68	22	32
March.....	116	63	20	33
April.....	114	61	20	33
May.....	111	58	20	33
June.....	111	58	20	33
July.....	93	43	20	30
August.....	97	47	20	30
September.....	98	46	20	32
October.....	112	58	22	32
November.....	116	62	22	32
December.....	118	63	23	32
Children under 16 years—				
January.....	11		5	6
February.....	11		5	6
March.....	11		5	6
April.....	18		5	13
May.....	16		5	11
June.....	15		5	10
July.....	10		5	5
August.....	10		5	5
September.....	10		5	5
October.....	10		5	5
November.....	11		5	6
December.....	11		5	6
Miscellaneous expenses, total.....	\$312,372	\$198,651	\$33,062	\$80,659
Rent of works.....	\$26,329	\$18,630	\$3,826	\$3,873
Taxes.....	\$3,813	\$1,956	\$844	\$1,013
Rent of offices, interest, insurance, and all other sundry expenses not hitherto included.....	\$279,230	\$175,065	\$28,392	\$75,773
Contract work.....	\$3,000	\$3,000		
Materials used, aggregate cost.....	\$892,206	\$623,756	\$77,122	\$191,328
Principal materials, total cost.....	\$825,878	\$577,732	\$73,700	\$174,446
Purchased in raw state.....	\$33,242			\$33,242
Purchased in partially manufactured form.....	\$792,636	\$577,732	\$73,700	\$141,204
Fuel.....	\$4,083	\$909	\$800	\$2,574
Rent of power and heat.....	\$5,423	\$3,141	\$875	\$1,407
Mill supplies.....	\$1,902	\$355	\$00	\$1,487
All other materials.....	\$54,770	\$41,619	\$1,737	\$11,414
Freight.....	\$150		\$150	
Products, aggregate value.....	\$2,082,005	\$1,334,049	\$231,762	\$516,194
Pens—				
Total gross.....	37,891	27,381	3,993	6,517
Total value.....	\$1,996,868	\$1,300,449	\$196,736	\$499,683
Fountain and stylographic—				
Gross.....	34,796	25,707	2,718	6,371
Value.....	\$1,844,675	\$1,183,336	\$163,736	\$497,603
Gold—				
Gross.....	2,888	1,530	1,275	83
Value.....	\$148,394	\$114,113	\$33,000	\$1,281
All other varieties—				
Gross.....	207	144		63
Value.....	\$3,799	\$3,000		\$799
All other products.....	\$85,137	\$33,600	\$35,026	\$16,511
Power:				
Number of establishments reporting.....	26	12	4	10
Total horsepower.....	272	88	41	143
Owned—				
Engines—				
Steam—				
Number.....	3		1	2
Horsepower.....	50		30	20
Gas and gasoline—				
Number.....	3	3		
Horsepower.....	26	26		
Water wheels—				
Number.....	2			2
Horsepower.....	100			100
Other power, horsepower.....	2			2
Rented—				
Electric motors—				
Number.....	20	11	2	7
Horsepower.....	74	50	3	21
Other kind, horsepower.....	20	12	8	
Furnished to other establishments, horsepower.....	10			10

Gold.—Table 8 is a comparative summary of the statistics of establishments in which the predominant product was gold pens, as returned at the censuses from 1860 to 1905, with the percentages of increase.

MANUFACTURES.

TABLE 8.—PENS, GOLD—COMPARATIVE SUMMARY, WITH PER CENT OF INCREASE: 1860 TO 1905.

	CENSUS.						PER CENT OF INCREASE.				
	1905	1900	1890	1880	1870 ¹	1860	1900 to 1905	1890 to 1900	1880 to 1890	1870 to 1880	1860 to 1870
Number of establishments.....	16	22	18	16	21	9	² 27.3	22.2	12.5	² 23.8	133.3
Capital.....	\$446,933	\$496,246	\$473,964	\$370,150	\$268,250	\$32,550	² 9.9	4.7	28.0	38.0	724.1
Salaried officials, clerks, etc., number.....	34	62	³ 62	(⁴)	(⁴)	(⁴)	² 45.2				
Salaries.....	\$42,287	\$67,522	³ \$75,124	(⁴)	(⁴)	(⁴)	² 37.4	² 10.1			
Wage-earners, average number.....	309	378	301	264	242	89	² 18.3	25.6	14.0	9.1	171.9
Total wages.....	\$225,454	\$229,679	\$185,545	\$172,207	\$133,556	\$36,228	² 1.8	23.8	7.7	28.9	268.7
Men 16 years and over.....	290	337	277	226	199	79	² 13.9	21.7	22.6	13.6	151.9
Wages.....	\$219,596	\$216,838	\$178,489	(⁴)	(⁴)	(⁴)	1.3	21.5			
Women 16 years and over.....	17	38	23	19	30	10	² 55.3	65.2	21.1	² 36.7	200.0
Wages.....	\$5,533	\$12,541	\$6,952	(⁴)	(⁴)	(⁴)	² 55.9	80.4			
Children under 16 years.....	2	3	1	19	13		² 33.3	200.0	² 94.7	46.2	
Wages.....	\$325	\$300	\$104	(⁴)	(⁴)		8.3	188.5			
Miscellaneous expenses.....	\$61,407	\$42,740	\$82,753	(⁵)	(⁵)	(⁵)	43.7	² 48.4			
Cost of materials used.....	\$274,235	\$312,537	\$235,628	\$190,906	\$181,740	\$40,080	² 12.3	32.6	23.4	5.0	353.4
Value of products.....	\$692,029	\$799,078	\$718,070	\$533,061	\$467,380	\$113,600	² 13.4	11.3	34.7	14.1	311.4

¹ Includes gold pencils.² Decrease.³ Includes proprietors and firm members, with their salaries; number only reported in 1900 and 1905, but not included in this table.⁴ Not reported separately.⁵ Not reported.

The decreases shown at the census of 1905 as compared with those of 1900 are due to the fact that certain establishments reporting gold pens as the chief product in 1900 reported fountain and stylographic pens as their major product for 1905, and therefore the returns for these factories were included in the statistics of the latter class for 1905. Moreover, other establishments reporting in 1900 were out of business in 1905.

Table 9 shows the number of establishments classified as "pens, gold," at the censuses of 1900 and 1905.

TABLE 9.—Pens, gold—number of establishments, by states: 1905 and 1900.

STATE.	1905	1900
United States.....	16	22
California.....		1
Illinois.....	3	2
Maryland.....		1
Massachusetts.....		1
Michigan.....		1
New York.....	12	14
Ohio.....		1
Rhode Island.....	1	1

In 4 states the establishments reporting gold pens at the census of 1900 were not in existence for 1905, but their product, when the plants were in operation, was of small value. The 1 establishment in Ohio for 1900 was in existence for 1905, but it is not shown in this table for 1905, since, under the rules of classification, it has been transferred to the class known as "pens, fountain and stylographic." In only 3 states was this industry conducted as a specialty—New York with 12 establishments, Illinois with 3, and Rhode Island with 1.

That the manufacture of gold pens, produced by all classes of establishments, did not decrease, is evident from Table 10, which presents a comparison of the quantities and values at the censuses of 1900 and 1905 for the total product of gold pens—the output of factories classified as "pens, gold," and also of those classified as "pens, fountain and stylographic," and "pencils, lead."

TABLE 10.—Gold pens—quantity and value, by states: 1905 and 1900.

STATE.	1905		1900		PER CENT OF INCREASE.	
	Gross.	Value.	Gross.	Value.	Gross.	Value.
United States.....	15,716	\$635,528	6,735	\$458,376	133.3	38.6
New York.....	13,499	554,638	5,210	365,050	159.1	51.9
All other states.....	2,217	80,890	1,525	93,326	45.4	² 13.3

¹ Includes the following states: In 1905, Illinois, New Jersey, Ohio, Rhode Island; in 1900, California, Illinois, Maryland, Massachusetts, Michigan, Ohio, Rhode Island.

² Decrease.

The table shows that the quantity of the product increased 8,981 gross, or 133.3 per cent, and the value, \$177,152, or 38.6 per cent.

Table 11 is a detailed summary of the gold pen industry, by states, as returned at the census of 1905.

TABLE 11.—Pens, gold—detailed summary, by states: 1905.

	United States.	New York.	All other states. ¹
Number of establishments.....	16	12	4
Capital, total.....	\$446,933	\$362,978	\$83,955
Machinery, tools, and implements.....	\$100,923	\$84,179	\$16,744
Cash and sundries.....	\$346,010	\$278,799	\$67,211
Proprietors and firm members.....	15	13	2
Salaried officials, clerks, etc.:			
Total number.....	34	20	14
Total salaries.....	\$42,287	\$31,306	\$10,981
Officers of corporations—			
Number.....	7	3	4
Salaries.....	\$12,815	\$8,490	\$4,325
General superintendents, managers, clerks, etc.—			
Total number.....	27	17	10
Total salaries.....	\$29,472	\$22,816	\$6,656
Men—			
Number.....	20	16	4
Salaries.....	\$26,890	\$22,316	\$4,574
Women—			
Number.....	7	1	6
Salaries.....	\$2,582	\$500	\$2,082
Wage-earners, including pieceworkers, and total wages:			
Greatest number employed at any one time during the year.....	338	283	55
Least number employed at any one time during the year.....	294	253	41
Average number.....	309	266	43
Total wages.....	\$225,454	\$201,397	\$24,057
Men 16 years and over—			
Average number.....	290	249	41
Wages.....	\$219,596	\$196,079	\$23,517
Women 16 years and over—			
Average number.....	17	15	2
Wages.....	\$5,533	\$4,993	\$540
Children under 16 years—			
Average number.....	2	1	1
Wages.....	\$325	\$325	

¹ Includes establishments distributed as follows: Illinois, 3; Rhode Island, 1.

TABLE 11.—*Pens, gold—detailed summary, by states: 1905—Cont'd.*

	United States.	New York.	All other states.
Average number of wage-earners, including piece-workers, employed during each month:			
Men 16 years and over—			
January.....	287	247	40
February.....	293	254	39
March.....	286	251	35
April.....	286	249	37
May.....	274	243	31
June.....	272	241	31
July.....	280	241	39
August.....	278	239	39
September.....	290	242	48
October.....	306	256	50
November.....	314	263	51
December.....	314	262	52
Women 16 years and over—			
January.....	17	15	2
February.....	17	15	2
March.....	17	15	2
April.....	17	15	2
May.....	17	15	2
June.....	17	15	2
July.....	17	15	2
August.....	17	15	2
September.....	17	15	2
October.....	17	15	2
November.....	17	15	2
December.....	17	15	2
Children under 16 years—			
January.....	2	2	2
February.....	2	2	2
March.....	2	2	2
April.....	2	2	2
May.....	2	2	2
June.....	2	2	2
July.....	2	2	2
August.....	2	2	2
September.....	2	2	2
October.....	2	2	2
November.....	2	2	2
December.....	2	2	2
Miscellaneous expenses, total.....	\$61,407	\$51,773	\$9,634
Rent of works.....	\$12,397	\$9,237	\$3,160
Taxes.....	\$736	\$534	\$202
Rent of offices, interest, insurance, and all other sundry expenses not hitherto included.....	\$48,274	\$42,002	\$6,272

TABLE 11.—*Pens, gold—detailed summary, by states: 1905—Cont'd.*

	United States.	New York.	All other states.
Materials used, total cost.....	\$274,235	\$252,500	\$21,735
Principal materials.....	\$259,838	\$241,484	\$18,354
Fuel.....	\$649	\$530	\$119
Rent of power and heat.....	\$3,253	\$2,926	\$327
Mill supplies.....	\$796	\$634	\$162
All other materials.....	\$9,624	\$6,926	\$2,698
Freight.....	\$75		\$75
Products, aggregate value.....	\$692,029	\$611,233	\$80,796
Pens and pencils, total value.....	\$670,439	\$593,916	\$76,523
Pens—			
Total gross.....	13,357	12,234	1,123
Total value.....	\$550,455	\$492,912	\$57,543
Gold—			
Gross.....	12,441	11,582	859
Value.....	\$469,084	\$422,475	\$46,609
Fountain—			
Gross.....	916	652	264
Value.....	\$81,371	\$70,437	\$10,934
Pencils—			
Gold, silver, and plated—			
Gross.....	1,301	718	583
Value.....	\$119,984	\$101,004	\$18,980
All other products.....	\$21,590	\$17,317	\$4,273
Power:			
Number of establishments reporting.....	15	12	3
Total horsepower.....	77	68	9
Owned—			
Engines—			
Gas and gasoline—			
Number.....	3	3	
Horsepower.....	15	15	
Rented—			
Electric motors—			
Number.....	7	5	2
Horsepower.....	24	20	4
Other kind, horsepower.....	38	33	5

Steel.—Table 12 is a comparative summary of the statistics for the manufacture of steel pens, as returned at the censuses from 1870 to 1905, with per cent of increase.

TABLE 12. PENS. STEEL—COMPARATIVE SUMMARY, WITH PER CENT OF INCREASE: 1870 TO 1905.

	CENSUS.					PER CENT OF INCREASE.			
	1905 ¹	1900 ²	1890	1880	1870	1900 to 1905	1890 to 1900	1880 to 1890	1870 to 1880
Number of establishments.....	5	3	3	3	3	66.7	10.5	118.7	4.3
Capital.....	\$575,788	\$357,460	\$399,182	\$182,500	\$175,000	61.1	13.3		
Salaried officials, clerks, etc., number.....	72	13	15	(³)	(³)	453.8	13.3		
Salaries.....	\$60,487	\$21,416	\$20,143	(³)	(³)	182.4	6.3		
Wage-earners, average number.....	663	473	496	280	257	40.2	4.6	77.1	8.9
Total wages.....	\$204,778	\$138,433	\$132,032	\$88,500	\$60,000	47.9	4.8	49.2	47.5
Men 16 years and over.....	58	65	141	34	47	10.8	53.9	314.7	27.7
Wages.....	\$28,978	\$26,684	\$59,907	(³)	(³)	8.6	55.5		
Women 16 years and over.....	553	371	322	230	195	49.0	15.2	40.0	17.9
Wages.....	\$166,316	\$101,622	\$66,876	(³)	(³)	63.7	52.0		
Children under 16 years.....	52	37	33	16	15	40.5	12.1	106.3	6.7
Wages.....	\$9,484	\$10,127	\$5,249	(³)	(³)	6.3	92.9		
Miscellaneous expenses.....	\$53,011	\$37,405	\$6,295	(³)	(³)	41.7	494.2		
Cost of materials used.....	\$103,005	\$52,466	\$56,630	\$38,950	\$49,943	96.3	27.4	45.4	22.0
Value of products.....	\$473,847	\$294,340	\$268,259	\$164,000	\$180,000	61.0	9.7	63.6	8.9

¹ Exclusive of the statistics of 1 establishment engaged primarily in the manufacture of other products. This establishment made steel pens to the value of \$37,844.

² Exclusive of the statistics of 1 establishment engaged primarily in the manufacture of other products. This establishment made steel pens to the value of \$51,214.

³ Decrease.

⁴ Includes proprietors and firm members, with their salaries; number only reported in 1900 and 1905, but not included in this table.

⁵ Not reported separately.

⁶ Not reported.

There was a marked increase in the industry for 1905 as compared with 1900. The increase in the value of products was 61 per cent. The absolute increase was much greater for this period than for any other census period. In this industry the women wage-earners predominated, forming 83.4 per cent of the total number, while children constituted 7.8 per cent.

Table 13 shows, by states, the number of establishments for 1900 and 1905.

TABLE 13.—*Pens, steel—number of establishments, by states: 1905 and 1900.*

STATE.	1905	1900
United States.....	5	3
New Jersey.....	2	1
New York.....	1	1
Ohio.....	1	1
Pennsylvania.....	1	1

MANUFACTURES.

Two new establishments are shown—1 in New Jersey and 1 in New York, the latter making ruling pens for draftsmen's use.

Table 14 is a detailed summary of the steel pen industry for 1905.

TABLE 14.—PENS, STEEL—DETAILED SUMMARY: 1905.

	United States.		United States.
Number of establishments.....	15	Average number of wage-earners, including pieceworkers, employed during each month—Continued.	
Capital, total.....	\$575,788	Women 16 years and over—Continued.	
Land.....	\$35,000	September.....	535
Buildings.....	\$63,000	October.....	558
Machinery, tools, and implements.....	\$146,536	November.....	574
Cash and sundries.....	\$331,252	December.....	504
Proprietors and firm members.....	1	Children under 16 years—	
Salaried officials, clerks, etc.:.....		January.....	49
Total number.....	72	February.....	49
Total salaries.....	\$60,487	March.....	51
Officers of corporations—		April.....	57
Number.....	6	May.....	51
Salaries.....	\$15,900	June.....	60
General superintendents, managers, clerks, etc.—		July.....	53
Total number.....	66	August.....	52
Total salaries.....	\$44,587	September.....	50
Men.....		October.....	54
Number.....	48	November.....	56
Salaries.....	\$36,883	December.....	42
Women.....		Miscellaneous expenses, total.....	\$53,011
Number.....	18	Rent of works.....	\$1,347
Salaries.....	\$7,704	Taxes.....	\$2,131
Wage-earners, including pieceworkers, and total wages:		Rent of offices, interest, insurance, and all other sundry expenses not hitherto included.....	\$44,533
Greatest number employed at any one time during the year.....	754	Contract work.....	\$5,000
Least number employed at any one time during the year.....	612	Materials used, total cost.....	\$103,005
Average number.....	663	Principal materials.....	\$79,557
Total wages.....	\$204,778	Fuel.....	\$6,148
Men 16 years and over—		Rent of power and heat.....	\$308
Average number.....	58	Mill supplies.....	\$8,561
Wages.....	\$28,978	All other materials.....	\$7,272
Women 16 years and over—		Freight.....	\$1,159
Average number.....	553	Products, aggregate value.....	\$473,847
Wages.....	\$166,316	Pens.....	
Children under 16 years—		Total gross.....	1,551,474
Average number.....	52	Total value.....	\$468,847
Wages.....	\$9,484	Steel—	
Average number of wage-earners, including pieceworkers, employed during each month:		Gross.....	1,521,474
Men 16 years and over—		Value.....	\$428,847
January.....	57	All other varieties—	
February.....	57	Gross.....	30,000
March.....	57	Value.....	\$40,000
April.....	60	All other products.....	\$5,000
May.....	60	Power.....	
June.....	57	Number of establishments reporting.....	5
July.....	58	Total horsepower.....	294
August.....	56	Owned—	
September.....	58	Engines—	
October.....	61	Steam—	
November.....	59	Number.....	2
December.....	56	Horsepower.....	275
Women 16 years and over—		Gas and gasoline—	
January.....	581	Number.....	1
February.....	591	Horsepower.....	10
March.....	575	Rented—	
April.....	573	Electric motors—	
May.....	566	Number.....	3
June.....	543	Horsepower.....	9
July.....	528		
August.....	508		

¹ Includes establishments distributed as follows: New Jersey, 2; New York, 1; Ohio, 1; Pennsylvania, 1.

PENCILS, LEAD.

Table 15 is a comparative summary for lead pencils,

as returned at the censuses from 1860 to 1905, with per cent of increase.

TABLE 15.—PENCILS, LEAD—COMPARATIVE SUMMARY, WITH PER CENT OF INCREASE: 1860 TO 1905.

	CENSUS.						PER CENT OF INCREASE.				
	1905	1900	1890	1880	1870	1860	1900 to 1905	1890 to 1900	1880 to 1890	1870 to 1880	1860 to 1870
Number of establishments.....	8	7	5	4	8	6	14.3	40.0	25.0	150.0	33.3
Capital.....	\$4,980,820	\$2,227,406	\$3,100,836	\$341,597	\$261,150	\$6,600	123.6	128.2	807.7	30.8	3,856.8
Salaried officials, clerks, etc., number.....	81	81	81	(²) 64	(²)	(²)	249.4	26.6			
Salaries.....	\$396,027	\$111,890	\$130,300	(²)	(²)	(²)	253.9	14.1			
Wage-earners, average number.....	3,065	2,162	1,388	399	160	24	41.8	55.8	247.9	149.4	566.7
Total wages.....	\$1,059,076	\$683,281	\$450,450	\$102,233	\$51,150	\$7,920	55.0	51.7	340.6	99.9	545.8
Men 16 years and over.....	1,282	758	483	116	65	18	69.1	56.9	316.4	78.5	261.1
Wages.....	\$602,902	\$352,563	\$264,481	(³)	(³)	(³)	71.0	33.3			
Women 16 years and over.....	1,607	1,087	632	144	95	6	47.8	72.0	338.9	51.6	1,483.3
Wages.....	\$420,641	\$263,118	\$144,409	(³)	(³)	(³)	59.9	82.2			
Children under 16 years.....	176	317	273	139	(³)	(³)	144.5	16.1	96.4		
Wages.....	\$35,533	\$67,600	\$41,560	(³)	(³)	(³)	147.4	62.7			
Miscellaneous expenses.....	\$860,070	\$278,176	\$154,528	(⁴)	(⁴)	(⁴)	209.2	80.0			
Cost of materials used.....	\$1,803,534	\$1,030,917	\$796,378	\$97,344	\$57,510	\$3,335	74.9	29.5	718.1	69.3	1,624.4
Value of products.....	\$4,425,896	\$2,222,276	\$1,687,560	\$279,427	\$180,000	\$20,400	99.2	31.7	503.9	55.2	782.4

¹ Decrease.

² Includes proprietors and firm members, with their salaries; number only reported in 1900 and 1905, but not included in this table.

³ Not reported separately.

⁴ Not reported.

The value of products was nearly doubled for 1905 as compared with 1900, the absolute increase being \$2,203,620 and the per cent of increase 99.2. The number of gross of pencils produced at the census of 1905, according to Table 17, was 2,225,884, or an increase of 60.9 per cent. The number of wage-earners and salaried employees increased 1,105, or 49.3 per cent.

Table 16 shows, by states, the number of establishments for 1900 and 1905.

TABLE 16.—*Pencils, lead—number of establishments, by states: 1905 and 1900.*

STATE.	1905	1900
United States.....	8	7
Illinois.....		1
Massachusetts.....		1
New Jersey.....	3	2
New York.....	3	3
Pennsylvania.....	2	

Although there was 1 more establishment for 1905 than for 1900, 2 states—Illinois and Massachusetts—shown for 1900, are not included in the list for 1905, since no pencil works were reported for either state in the latter year. The number of establishments in New Jersey increased by 1, while for 1905, 2 establishments were reported for Pennsylvania, for which state none was shown in 1900.

The great variety of lead pencils made is somewhat

surprising, there being over a thousand different grades, shapes, sizes, and colors.

The wood-cased pencils were made principally in New Jersey and New York, while the metal and other varieties were manufactured in Pennsylvania and to some extent in New York. The value of the wood-cased pencils produced in New Jersey and New York formed 94.9 per cent of the total for the United States.

The pencil works in New Jersey at the census of 1905 were located at Jersey City and Hoboken; the former city had 2 plants and the latter 1 plant. In Pennsylvania the pencil works were located in and near Philadelphia, one factory making paper pencils on a large scale. The New York pencil works were located in New York city. There were 3 establishments in all, 2 of which produced wood-cased pencils and the other the gold, silver, and plated kinds.

Since the net increase between 1900 and 1905 was only 1 establishment manufacturing lead pencils, the increased volume of business must be attributed largely to the pioneer establishments. The manufacturers own graphite mines and also operate saw-mills in Florida and adjacent territory where are located the pine and cedar forests which yield the wood for pencil cases.

Table 17 is a detailed summary of the statistics for the lead pencil industry as reported at the census of 1905.

MANUFACTURES.

TABLE 17.—PENCILS, LEAD—DETAILED SUMMARY: 1905.

	United States.		United States.
Number of establishments.....	18	Average number of wage-earners, including pieceworkers, employed during each month—Continued.	
Capital, total.....	\$4,980,820	Children under 16 years—	
Land.....	\$342,418	January.....	189
Buildings.....	\$841,214	February.....	184
Machinery, tools, and implements.....	\$810,402	March.....	195
Cash and sundries.....	\$2,986,786	April.....	203
Proprietors and firm members.....	3	May.....	182
Salaried officials, clerks, etc.:—		June.....	191
Total number.....	283	July.....	200
Total salaries.....	\$396,027	August.....	199
Officers of corporations—		September.....	180
Number.....	16	October.....	154
Salaries.....	\$86,764	November.....	137
General superintendents, managers, clerks, etc.—		December.....	118
Total number.....	267	Miscellaneous expenses, total.....	\$860,070
Total salaries.....	\$309,263	Rent of works.....	\$10,910
Men—		Taxes.....	\$21,618
Number.....	227	Rent of offices, interest, insurance, and all other sundry expenses not hitherto included.....	\$827,542
Salaries.....	\$288,661	Materials used, aggregate cost.....	\$1,803,534
Women—		Principal materials, total cost.....	\$1,260,141
Number.....	40	Purchased in raw state.....	\$201,493
Salaries.....	\$20,602	Purchased in partially manufactured form.....	\$1,058,648
Wage-earners, including pieceworkers, and total wages:		Fuel.....	\$58,529
Greatest number employed at any one time during the year.....	3,184	Rent of power and heat.....	\$1,273
Least number employed at any one time during the year.....	2,992	Mill supplies.....	\$43,670
Average number.....	3,065	All other materials.....	\$423,541
Total wages.....	\$1,059,076	Freight.....	\$16,380
Men 16 years and over.....		Products, aggregate value.....	\$4,425,896
Average number.....	1,282	Pencils and pens, total value.....	\$3,176,290
Wages.....	\$602,902	Pencils—	
Women 16 years and over.....		Total gross.....	2,225,884
Average number.....	1,607	Total value.....	\$3,043,724
Wages.....	\$420,641	Wood—	
Children under 16 years—		Gross.....	2,179,514
Average number.....	176	Value.....	\$2,889,481
Wages.....	\$35,533	Metal and other varieties	
Average number of wage-earners, including pieceworkers, employed during each month:		Gross.....	46,370
Men 16 years and over—		Value.....	\$154,243
January.....	1,279	Pens—	
February.....	1,279	Gross.....	302,734
March.....	1,292	Value.....	\$132,566
April.....	1,298	All other products.....	\$1,249,606
May.....	1,293	Power:	
June.....	1,252	Number of establishments reporting.....	7
July.....	1,274	Total horsepower.....	2,997
August.....	1,280	Owned—	
September.....	1,270	Engines—	
October.....	1,280	Steam—	
November.....	1,287	Number.....	9
December.....	1,300	Horsepower.....	2,580
Women 16 years and over—		Electric motors—	
January.....	1,612	Number.....	27
February.....	1,638	Horsepower.....	372
March.....	1,615	Rented—	
April.....	1,625	Electric motors—	
May.....	1,632	Number.....	1
June.....	1,393	Horsepower.....	15
July.....	1,606	Other kind, horsepower.....	30
August.....	1,615		
September.....	1,609		
October.....	1,644		
November.....	1,628		
December.....	1,667		

¹ Includes establishments distributed as follows: New Jersey, 3; New York, 3; Pennsylvania, 2.

GLASS .

(835)

GLASS.

By H. B. PEFFERS.

At the census of 1905 the statistics of the manufacture of glass for establishments engaged in its production from crude materials were based on the same classification as that of the Twelfth Census, which was as follows: (1) Building glass—establishments manufacturing common window glass, plate glass, and all varieties of cast and rolled sheet glass; (2) pressed and blown glassware—establishments manufacturing tableware, jellies,

tumblers, goblets, lamps, chimneys, lantern globes, gas and electric lighting ware, opal ware, cut glass, etc.; (3) bottles and jars—establishments manufacturing bottles and jars in flint, green, and amber glass.

Table 1 is a comparative summary of the statistics for the manufacture of glass, as returned at the censuses of 1850 to 1905, inclusive, with the per cent of increase at each census.

TABLE 1.—GLASS MANUFACTURE—COMPARATIVE SUMMARY, WITH PER CENT OF INCREASE: 1850 TO 1905.

	CENSUS.							PER CENT OF INCREASE.					
	1905	1900	1890	1880	1870	1860	1850	1900 to 1905	1890 to 1900	1880 to 1890	1870 to 1880	1860 to 1870	1850 to 1860
Number of establishments...	399	355	294	169	201	112	94	12.4	20.7	74.0	15.9	79.5	19.1
Capital...	\$89,389,151	\$61,423,903	\$40,966,850	\$18,804,599	\$14,111,642	\$6,133,666	\$3,402,350	45.5	49.9	117.9	33.3	130.1	80.3
Salaried officials, clerks, etc., number...	3,040	2,268	21,095	(3)	(3)	(3)	(3)	34.0	107.1	.....	.....	.....	.....
Salaries...	\$3,940,293	\$2,792,376	\$1,232,561	(3)	(3)	(3)	(3)	41.1	126.6	.....	.....	.....	.....
Wage-earners, average number...	63,969	52,818	44,892	24,177	15,822	9,016	5,668	21.1	17.7	85.7	52.8	75.5	59.1
Total wages...	\$37,288,148	\$27,084,710	\$20,885,961	\$9,144,100	\$7,846,425	\$2,903,832	\$2,094,576	37.7	29.7	128.4	16.5	170.2	38.6
Men 16 years and over...	54,079	42,173	36,064	17,778	11,505	8,765	5,571	28.2	16.9	102.9	54.5	31.3	57.3
Wages...	\$35,005,647	\$24,901,233	\$19,546,351	(3)	(3)	(3)	(3)	40.6	27.4	.....	.....	.....	.....
Women 16 years and over...	3,455	3,529	1,885	741	715	251	97	12.1	87.2	154.4	3.6	184.9	158.8
Wages...	\$868,508	\$840,001	\$332,245	(3)	(3)	(3)	(3)	3.4	152.8	.....	.....	.....	.....
Children under 16 years...	6,435	7,116	6,943	5,658	3,602	(3)	(3)	19.6	2.5	22.7	57.1	.....	.....
Wages...	\$1,413,693	\$1,343,476	\$1,007,365	(3)	(3)	(3)	(3)	5.2	33.4	.....	.....	.....	.....
Miscellaneous expenses...	\$5,911,507	\$3,588,641	\$2,267,696	(3)	(3)	(3)	(3)	64.7	58.3	.....	.....	.....	.....
Cost of materials used...	\$26,145,522	\$16,731,009	\$12,140,985	\$8,028,621	\$6,133,168	\$2,914,303	\$1,556,833	56.3	37.8	51.2	30.9	110.5	87.2
Value of products...	\$79,607,998	\$56,539,712	\$41,051,004	\$21,154,571	\$19,235,862	\$8,775,155	\$4,641,676	40.8	37.7	94.1	10.0	119.2	89.1

¹ Decrease.

² Includes proprietors and firm members, with their salaries; number only reported in 1900 and 1905, but not included in this table.

³ Not reported separately.

⁴ Not reported.

The general development of the industry is indicated by a comparison of the figures in Table 1. In each census period since 1850, except 1870 to 1880, there was an increase in the number of establishments engaged in the manufacture of glass. There was also an increase in each period in the amount of capital invested, value of products, average number of wage-earners, and wages. For each of the four items other than the average number of wage-earners the per cent of increase was greatest in the decade 1860 to 1870, and smallest in the decade 1870 to 1880. For the average number of wage-earners it was greatest in the decade 1880 to 1890, and smallest in the decade 1890 to 1900. During the fifty-five years there was an increase of 305,

or over threefold, in the number of establishments; \$85,986,801, or more than twenty-five fold, in capital; \$74,966,322, or more than sixteenfold, in value of products; 58,301, or more than tenfold, in average number of wage-earners; and \$35,193,572, or nearly seventeenfold, in wages. The recent development of the industry is indicated by the fact that during the fifteen years following 1890 the increases in capital and value of products were greater than they were during the preceding forty years by \$10,857,801, or 28.9 per cent, and \$2,147,666, or 5.9 per cent, respectively.

The number of active establishments increased 125, or 74 per cent, from 1880 to 1890; 61, or 20.7 per cent, from 1890 to 1900; and 44, or 12.4 per cent, from 1900

to 1905. Of the 294 establishments in operation in 1890, 100 were engaged in the manufacture of building glass; 125 in the manufacture of pressed and blown ware; and 69 in the manufacture of bottles and jars. During 1900 the 355 establishments reporting were engaged as follows: 124 were manufacturing building glass; 84, pressed and blown ware; and 147, bottles and jars. Of the 399 establishments reporting in 1905, 138 produced building glass; 103, pressed and blown glass; and 158, bottles and jars. From 1890 to 1900 the increase in number of establishments engaged in the manufacture of building glass was 24 per cent; and from 1900 to 1905, 11.3 per cent. During the same periods the number of establishments producing pressed and blown ware decreased 32.8 per cent and increased 22.6 per cent, respectively. The increase in number of establishments engaged in the manufacture of bottles and jars was 113 per cent from 1890 to 1900, and 7.5 per cent from 1900 to 1905.

The amount of capital invested increased 49.9 per cent between 1890 and 1900, and 45.5 per cent between 1900 and 1905; while during the same periods the value of products increased 37.7 per cent and 40.8 per cent, respectively. It is thus evident that while the per cent of increase in the number of establishments was much greater between 1890 and 1900 than between 1900 and 1905, the per cent of increase in the amount of capital invested was almost the same for the two periods. The value of products, however, shows a larger per cent of increase for the five years from 1900 to 1905 than for the ten years from 1890 to 1900.

From 1890 to 1900 the number of wage-earners increased 17.7 per cent, and the wages paid, 29.7 per cent; from 1900 to 1905 the number employed increased 21.1 per cent, and the wages paid, 37.7 per cent. The increase in the average number of wage-earners between 1900 and 1905 was confined entirely to the increase in the number of men, for there was a decrease in the number of women and children employed.

While there has been a marked advance in the glass industry since 1850, the development has been in the quality of the glass produced, rather than in the further adaptation of glass to commercial uses, or, until recently, in improvements in the manufacturing process. For many years the industry did not extend beyond the manufacture of window glass, tableware, and bottles, and the methods of making these were practically the same as those used by the early glassmakers. A

few years ago nearly all the articles made, except plate glass, were produced by skilled artisans, practically no machinery being employed in the manufacture. The principal item of expense in glass manufacture was therefore the cost of this skilled labor. Although some important improvements, which promise further changes in the methods of manufacturing various glass articles, have been introduced during the census year, they are of too recent origin to affect the statistics.

Since 1900 the glass manufacturers in the United States have made vast strides in the direction of cheaper production. Machines for mechanical manipulation in the production of window glass, for manufacturing narrow necked bottles, and for conveying ware are some of the latest contributions to the industry. Some of these machines were perfected during the census year and are now in active operation, but their influence on the industry was slight during 1904, as their operation in that year was more or less an experiment. The general improvement in factory construction, furnace equipment, and installation of mechanical blowing machines is generally indicated by the figures presented in Table 1.

As previously stated, the number of women and children employed in 1905 shows a slight decrease, compared with the number reported in 1900, although the wages paid in both instances show an increase. Women are employed in glass establishments in the packing, the finishing, and the decorating departments. The decrease in the number employed was in the packing and the finishing departments. There was, however, an increased demand for women artists in the decorating department, which, together with the fact that this class of employees command higher wages, would in a measure account for the increase in wages, notwithstanding the decrease in number employed. The adoption of child labor laws by the various states was the direct cause for the decrease from 1900 to 1905 in the number of children employed. Many factories were so hampered by the scarcity of this class of labor during the census year that they were compelled to temporarily suspend operations, a condition of affairs which led many manufacturers to experiment with labor saving devices and other means for dispensing with child labor.

Table 2 is a comparative summary showing the totals for glass manufacture, by states, as reported at the censuses of 1880 to 1905, inclusive.

MANUFACTURES.

TABLE 2.—GLASS MANUFACTURE—COMPARATIVE

STATE.	Census.	Number of establishments.	Capital.	SALARIED OFFICIALS, CLERKS, ETC.		WAGE-EARNERS AND WAGES.							
						Total.		Men 16 years and over.		Women 16 years and over.		Children under 16 years.	
				Number.	Salaries.	Average number.	Wages.	Average number.	Wages.	Average number.	Wages.	Average number.	Wages.
United States...	1905	399	\$89,389,151	3,040	\$3,940,293	63,969	\$37,288,148	54,079	\$35,005,647	3,455	\$868,808	6,435	\$1,413,693
	1900	355	61,423,903	2,268	2,792,376	52,818	27,084,710	42,173	24,901,233	3,529	840,001	7,116	1,343,476
	1890	294	40,966,850	1,095	1,232,561	44,892	20,885,961	36,064	19,546,351	1,885	332,245	6,943	1,007,365
	1880	¹ 194	² 19,329,699	(³)	(⁴)	24,177	9,144,200	17,778	(⁵)	741	(⁶)	5,658	(⁶)
California ⁶	1905	4	1,244,919	52	65,382	889	498,225	788	453,391	77	37,684	24	7,150
Illinois.....	1905	13	3,576,172	119	151,330	4,768	3,011,632	4,258	2,912,778	127	26,853	383	72,001
	1900	6	2,181,801	75	110,100	3,304	1,621,286	2,607	1,495,891	148	28,456	549	95,939
	1890	13	1,721,878	31	44,710	2,762	1,188,051	2,215	1,121,526	20	3,860	527	62,665
	1880	6	425,000	(⁴)	(⁴)	732	342,027	632	(⁵)	(⁶)	(⁶)	100	(⁶)
Indiana.....	1905	96	13,884,485	432	548,999	12,020	6,638,130	10,662	6,316,351	487	101,018	871	220,761
	1900	110	12,775,389	509	649,227	13,015	7,226,047	10,910	6,808,042	634	129,800	1,471	95,939
	1890	21	3,556,563	79	75,682	3,010	1,469,149	2,633	1,422,104	197	27,811	180	19,234
	1880	4	1,442,000	(⁴)	(⁴)	862	284,207	695	(⁵)	53	(⁶)	114	(⁶)
Kansas ⁷	1905	9	590,906	27	28,610	718	446,771	620	424,201	44	9,758	54	12,812
Maryland.....	1905	6	523,199	28	35,328	649	354,235	502	324,328	34	9,124	113	20,783
	1900	7	581,086	31	38,976	742	339,518	562	313,920	54	8,673	126	16,925
	1890	11	871,111	16	12,176	1,397	696,560	1,045	650,921	24	6,864	328	38,775
	1880	7	406,000	(⁴)	(⁴)	612	234,254	524	(⁵)	(⁶)	(⁶)	88	(⁶)
Massachusetts.....	1905	4	610,763	45	64,988	855	441,541	729	409,741	96	24,500	30	7,300
	1900	5	258,949	39	28,030	387	188,674	343	179,236	19	4,392	25	5,046
	1890	6	365,051	18	17,774	496	201,653	455	195,221	19	3,732	22	2,700
	1880	10	723,000	(⁴)	(⁴)	946	383,432	828	(⁵)	58	(⁶)	60	(⁶)
Missouri.....	1905	6	3,219,034	111	158,874	1,561	938,454	1,469	917,620	8	1,800	84	19,034
	1900	3	2,198,316	26	47,448	650	341,375	648	340,825	(⁶)	(⁶)	2	550
	1890	5	2,201,353	39	54,082	1,113	542,157	1,016	524,373	(⁶)	(⁶)	97	17,784
	1880	11	1,430,000	(⁴)	(⁴)	965	381,098	709	(⁵)	36	(⁶)	220	(⁶)
New Jersey.....	1905	22	6,304,455	369	358,988	5,507	3,145,384	4,815	2,996,759	124	29,603	568	119,022
	1900	26	5,397,662	317	284,960	5,383	2,462,745	4,366	2,278,306	170	32,726	847	151,713
	1890	34	3,744,894	152	132,619	5,688	2,730,100	4,601	2,605,798	42	8,405	1,045	115,897
	1880	22	2,568,021	(⁴)	(⁴)	3,578	1,300,038	2,762	(⁵)	46	(⁶)	770	(⁶)
New York.....	1905	28	3,455,441	142	202,443	3,153	1,824,576	2,800	1,715,544	103	25,635	250	83,397
	1900	27	2,242,834	117	139,698	2,556	1,305,264	2,201	1,239,971	73	17,831	282	47,462
	1890	30	2,297,699	56	61,413	3,229	1,422,626	2,587	1,319,607	92	17,025	550	85,994
	1880	29	1,875,600	(⁴)	(⁴)	3,078	1,046,812	2,116	(⁵)	50	(⁶)	912	(⁶)
Ohio.....	1905	37	9,254,195	309	444,268	7,844	4,511,605	6,321	4,172,470	787	186,605	736	152,530
	1900	28	5,451,513	199	249,029	4,546	2,067,384	3,505	1,844,958	405	96,017	636	126,409
	1890	59	4,094,677	216	230,323	6,435	2,901,255	5,053	2,700,036	538	74,227	844	126,992
	1880	19	1,172,850	(⁴)	(⁴)	1,688	644,520	1,170	(⁵)	81	(⁶)	437	(⁶)
Pennsylvania.....	1905	122	40,612,180	1,167	1,597,113	20,794	12,518,440	17,074	11,658,488	1,107	305,140	2,613	554,812
	1900	119	28,287,187	842	1,110,383	19,420	10,287,491	15,136	9,338,261	1,546	414,250	2,738	534,980
	1890	99	20,459,049	424	518,640	18,510	8,728,520	14,824	8,090,926	749	154,689	2,937	482,905
	1880	77	7,609,706	(⁴)	(⁴)	9,784	3,897,306	6,999	(⁵)	294	(⁶)	2,491	(⁶)
Virginia ⁸	1905	4	402,459	11	17,868	472	263,657	404	248,128	(⁶)	(⁶)	118	15,529
West Virginia.....	1905	39	4,299,860	189	208,855	3,673	2,054,181	2,777	1,852,741	445	106,695	451	94,745
	1900	16	1,338,084	85	97,551	1,949	789,422	1,319	657,984	468	103,748	162	27,690
	1890	7	825,313	34	46,946	1,371	511,079	970	446,349	190	32,632	211	32,098
	1880	4	550,522	(⁴)	(⁴)	346	311,650	615	(⁵)	100	(⁶)	231	(⁶)
All other states.....	⁹ 1905	9	1,411,083	39	57,247	1,066	641,317	860	603,107	16	4,393	190	33,817
	¹⁰ 1900	8	711,082	28	36,944	866	455,504	576	402,839	12	4,100	278	48,565
	¹¹ 1890	9	829,262	30	38,196	881	494,811	665	469,490	14	3,000	202	22,321
	¹² 1880	10	1,127,000	(⁴)	(⁴)	986	318,846	728	(⁵)	23	(⁶)	235	(⁶)

¹Not reported in 1890 and 1880.²While the aggregate value for the respective states is the aggregate value of products reported for all branches of glass manufacture, all of the state totals can not be obtained by adding the amounts given, as the reports of certain products have been suppressed, to avoid disclosing the operations of individual establishments.³Includes 25 establishments idle or in process of construction, with a capital of \$525,100 not reported separately by states in 1880.⁴Not reported separately.⁵Not reported in 1880.⁶Included in "all other states" in 1880, 1890, and 1900.

SUMMARY, BY STATES: 1880 TO 1905.

Miscellaneous expenses.	Cost of materials used.	VALUE OF PRODUCTS.					FURNACES.											
		Total.	Building glass.	Pressed and blown glass.	Bottles and jars.	All other products.	Total.		Pot.		Tank. ¹							
							Number.	Pot capacity.	Number.	Number of pots.	Continuous.			Intermittent.				
											Number.	Number of rings.	Pot capacity.	Number.	Tons capacity.	Pot capacity.		
\$5,911,507 3,588,641 2,267,696 (^c)	\$26,145,522 16,731,009 12,140,985 8,028,621	\$79,607,998 56,539,712 41,051,004 21,154,571	\$21,697,861 17,096,234 13,928,296 5,915,618	\$21,956,158 17,076,125 18,601,244 9,568,520	\$33,631,063 21,676,791 8,521,464 5,670,433	\$2,322,916 690,562	871 804 564 285	12,731 9,941 4,932 2,421	398 451 564 285	4,809 5,107 4,932 2,421	366 206	3,267 1,750	7,447 3,933	107 147	475 901	475 901	1 2 3 4	
64,242	274,011	915,446	60,000		855,446		8	122			8	57	122					5
379,907	1,400,237	5,619,740	281,559	149,265	4,949,156	239,760	41	763	12	151	24	284	582	5	30	30	6	
210,588	674,008	2,834,398	24,000	131,618	2,678,780		28	435	10	129	11	133	266	7	40	40	7	
134,625 (^c)	682,248 297,842	2,372,011 901,343		949,883	995,907 528,000		27 8	225 74	27 8	225 74							8 9	
710,654	5,558,839	14,706,929	3,790,618	2,859,087	7,213,456	843,768	165	2,484	70	749	91	774	1,707	4	28	28	10	
690,165	4,582,141	14,757,883	5,711,948	2,691,787	6,327,468	26,680	237	2,905	125	1,354	75	576	1,331	37	220	220	11	
360,384 (^c)	865,374 433,733	2,995,409 790,781	1,831,745 725,797	672,179	491,485 64,984		48 10	449 108	48 10	449 108							12 13	
41,892	355,093	958,720	381,084	64,697	407,868	105,071	12	178	5	80	7	64	148				14	
31,411	158,732	589,589		46,191	536,478	6,920	10	109	8	91	1	5	10	1	8	8	15	
26,065	151,500	557,895	103,262	100,000	346,633	8,000	13	113	12	107					6	6	16	
35,847 (^c)	295,337 239,682	1,256,697 587,000		674,900 85,000			19 9	161 68	19 9	161 68							17 18	
97,244	316,080	1,011,373		558,911	50,000	402,462	7	52	7	52							19	
14,243	137,185	418,458	16,200	382,091	20,167		8	155	7	65				1	90	90	20	
35,760 (^c)	127,180 329,864	431,437 854,345	72,748 149,845		704,500		11 11	69 99	11 11	69 99							21 22	
133,098	707,871	1,781,026	1,036,433	119,010	607,383	18,200	10	204	5	120	5	40	84				23	
98,119	231,515	765,564	505,564		260,000		12	183	7	110							24	
116,397 (^c)	557,874 351,871	1,215,329 919,827	1,215,329 390,550				13 7	148 51	13 7	148 51							25 26	
475,747	1,856,239	6,450,195	201,922	181,559	6,066,714		80	1,013	23	183	46	381	770	11	60	60	27	
241,655	1,488,700	5,093,822	274,011	21,300	4,452,219	346,292	84	1,024	33	255	37	333	690	14	79	79	28	
116,009	1,310,953	5,218,152	1,816,170	2,235,426	2,666,556		80	469	80	469							29	
(^c)	1,088,346	2,810,170	729,155	400,000	1,681,015		44	289	44	289							30	
385,487	1,411,973	4,279,766	456,310	1,932,524	1,866,245	24,687	59	720	31	284	24	194	420	4	16	16	31	
145,505	899,590	2,756,978	346,790	1,173,784	1,195,276	41,128	51	529	29	247	14	115	230	8	52	52	32	
167,900 (^c)	825,498 944,691	2,723,019 2,420,796		1,307,156 1,157,571	693,686 722,322		55 43	400 339	55 43	400 339							33 34	
783,562	2,836,521	9,026,208	1,625,126	3,954,660	2,961,727	484,695	93	1,335	43	620	36	303	673	14	42	42	35	
155,512	1,253,164	4,547,083	671,422	2,738,289	1,058,955	78,417	60	776	42	539	12	95	212	6	25	25	36	
294,744 (^c)	1,602,599 459,333	5,649,182 1,549,320		3,554,370 1,076,320	519,015 115,000		85 20	806 187	85 20	806 187							37 38	
2,265,947	9,325,184	27,671,693	12,169,013	9,406,183	5,951,144	145,353	269	4,468	137	1,937	93	918	2,382	39	149	149	39	
1,867,879	6,435,463	22,011,130	9,213,545	8,453,550	4,162,990	181,045	261	3,420	168	2,117	44	412	1,029	49	274	274	40	
911,178 (^c)	5,294,992 3,350,660	17,179,137 8,720,584	6,406,924 2,222,513	8,700,124 4,881,312	2,072,089 1,616,759		197 112	1,982 1,029	197 112	1,982 1,029							41 42	
35,679	169,461	549,031			549,031		6	82			6	41	82				43	
396,646	1,259,480	4,598,563	1,323,896	2,620,665	602,002	52,000	92	972	49	481	19	161	377	24	114	114	44	
112,791	593,251	1,871,795	101,242	1,379,706	381,847	9,000	35	246	15	156				20	90	90	45	
40,805 (^c)	277,033 208,064	945,234 748,500		945,234 748,500			17 8	144 82	17 8	144 82							46 47	
109,991	515,741	1,449,719	371,900	63,406	1,014,413		19	229	8	111	6	45	90	5	28	28	48	
26,119	284,492	924,706	128,250	4,000	792,456		15	155	3	28	8	51	102	4	25	25	49	
54,047 (^c)	301,897 324,535	1,065,397 851,905	4,300,709 93,512	561,972 378,830	1,082,726 379,563		12 13	79 95	12 13	79 95							50 51	

¹None reported in 1880, 1890, and 1900.²Included in "all other states" in 1900. None reported in 1880 and 1890.³Includes establishments distributed as follows: Colorado, 1; Delaware, 1; Georgia, 1; Indian Territory, 1; Michigan, 2; South Carolina, 1; Tennessee, 1; Wisconsin, 1.⁴Includes establishments distributed as follows: California, 1; Colorado, 1; Delaware, 1; Georgia, 1; Michigan, 1; Virginia, 2; Wisconsin, 1.⁵Includes establishments distributed as follows: California, 1; Colorado, 1; Delaware, 1; Georgia, 2; Kentucky, 2; Michigan, 1; Wisconsin, 1.⁶Includes establishments distributed as follows: California, 1; Connecticut, 1; Iowa, 1; Kentucky, 5; Michigan, 1; New Hampshire, 1.

The number of furnaces reported increased from 804 in 1900 to 871 in 1905, or 8.3 per cent, and the pot capacity from 9,941 in 1900 to 12,731 in 1905, or 28.1 per cent. The average pot capacity per establishment in 1900 was 28 pots, while in 1905 it was 32. The substitution of the tank for the pot furnace, noted in 1900, continues. The number of pot furnaces reported decreased from 451 in 1900 to 398 in 1905, or 11.8 per cent, and the number of pots from 5,107 in 1900 to 4,809 in 1905, or 5.8 per cent. The number of continuous tank furnaces reported in 1905 was 366, with a capacity of 7,447 pots, as compared with 206 furnaces, with a pot capacity of 3,933 pots, reported in 1900. The increase in number of

these furnaces was 77.7 per cent, and in pot capacity 89.3 per cent. The number of intermittent tanks reported in 1905 was 107, with a capacity of 475 tons, as compared with 147 furnaces, with 901 tons capacity in 1900, a decrease of 27.2 per cent in number of furnaces and 47.3 per cent in tons capacity.

The figures for states show that since 1890 there has been an increase in capital and in value of products for each glass manufacturing state, except Maryland.

Table 3 shows the states ranked according to the value of glass products at each census from 1880 to 1905, and the percentage which the value of products for each state forms of the total for the United States.

TABLE 3.—GLASS MANUFACTURE—RANK OF STATES BY VALUE OF PRODUCTS, WITH PER CENT OF TOTAL VALUE: 1880 TO 1905.

STATE.	RANK.				VALUE OF PRODUCTS.				PER CENT OF TOTAL VALUE.			
	1905	1900	1890	1880	1905	1900	1890	1880	1905	1900	1890	1880
United States.....					\$79,607,998	\$56,539,712	\$41,051,004	\$21,154,571	100.0	100.0	100.0	100.0
Pennsylvania.....	1	1	1	1	27,671,693	22,011,130	17,179,137	8,720,584	34.8	38.9	41.8	41.2
Indiana.....	2	2	4	8	14,706,929	14,757,883	2,995,409	790,781	18.5	26.1	7.3	3.7
Ohio.....	3	4	2	4	9,026,208	4,547,083	5,649,182	1,549,320	11.3	8.1	13.8	7.3
New Jersey.....	4	3	3	2	6,450,195	5,093,822	5,218,152	2,810,170	8.1	9.0	12.7	13.3
Illinois.....	5	5	6	6	5,619,740	2,834,398	2,372,011	901,343	7.1	5.0	5.8	4.3
West Virginia.....	6	7	9	9	4,598,563	1,871,795	945,234	748,500	5.8	3.3	2.3	3.5
New York.....	7	6	5	3	4,279,766	2,756,978	2,723,019	2,420,796	5.4	4.9	6.6	11.5
Missouri.....	8	8	8	5	1,781,026	765,564	1,215,329	919,827	2.2	1.4	3.0	4.4
Massachusetts.....	9	10	10	7	1,011,373	418,458	451,437	854,345	1.3	0.7	1.0	4.0
Kansas.....	10				958,720	(¹)	(¹)	(¹)	1.2			
California.....	11	12	14	13	915,446	(²)	(²)	140,000	1.1			0.7
Maryland.....	12	9	7	10	589,589	557,895	1,256,697	587,000	0.7	1.0	3.1	2.8
Virginia.....	13	13			549,031	(²)	(¹)	(¹)	0.7			
Wisconsin.....	14	11	13		(²)	(²)	(²)	(¹)				
Michigan.....	15	16	17	14	(²)	(²)	(²)	90,000				0.4
South Carolina.....	16				(²)	(¹)	(¹)	(¹)				
Colorado.....	17	17	15		(²)	(²)	(²)	(¹)				
Tennessee.....	18				(²)							
Georgia.....	19	15	12		(²)	(²)	(²)	(¹)				
Delaware.....	20	14	16		(²)	(¹)	(¹)	(¹)				
Indian Territory.....	21				(¹)	(¹)	(¹)	(¹)				
Kentucky.....			11	11	(¹)	(¹)	(²)	388,405				1.8
Connecticut.....				12	(¹)	(¹)	(¹)	160,000				0.8
New Hampshire.....				15	(¹)	(¹)	(¹)	70,000				0.3
Iowa.....				16	(¹)	(¹)	(¹)	3,500				(²)
All other states ⁴					1,449,719	924,706	1,065,397		1.8	1.6	2.6	

¹ Not reported.

² Included in "all other states."

³ Less than one-tenth of 1 per cent.

⁴ Includes the following states: 1905—Colorado, Delaware, Georgia, Indian Territory, Michigan, South Carolina, Tennessee, Wisconsin. 1900—California, Colorado, Delaware, Georgia, Michigan, Virginia, Wisconsin. 1890—California, Colorado, Delaware, Georgia, Kentucky, Michigan, Wisconsin.

Since the census of 1900 Kansas, South Carolina, Tennessee, and Indian Territory have been added to the list of glass producing states, making a total of 21. Pennsylvania retained first place, with 34.8 per cent of the total value of products of the United States. Indiana was again second, with 18.5 per cent, but Ohio, which was second in 1890 and fourth in 1900, was third in 1905, having changed places with New Jersey since 1900. Illinois, the fifth state

in 1900, retained that position in 1905, but increased its percentage of the total product from 5 per cent in 1900 to 7.1 in 1905. West Virginia, which ranked seventh in 1900, was sixth in 1905, displacing New York, which fell to seventh place. Missouri was eighth, the position it has occupied since 1890.

Building glass.—Table 4 presents the comparative statistics of establishments engaged in the manufacture of building glass for 1890, 1900, and 1905.

TABLE 4.—BUILDING GLASS—COMPARATIVE

STATE.	Cen- sus.	Num- ber of estab- lish- ments.	Capital.	SALARIED OFFI- CIALS, CLERKS, ETC.		WAGE-EARNERS AND WAGES.							
						Total.		Men 16 years and over.		Women 16 years and over.		Children under 16 years.	
				Number.	Salaries.	Average number.	Wages.	Average number.	Wages.	Average number.	Wages.	Average number.	Wages.
1 United States ...	1905	138	\$40,666,410	928	\$1,156,071	14,880	\$10,546,090	14,731	\$10,505,257	25	\$7,446	124	\$33,387
2	1900	124	26,617,122	615	811,983	11,902	9,029,673	11,801	8,999,613	20	4,901	81	25,159
3	1890	100	18,353,576	292	338,112	11,982	7,159,903	11,633	7,073,965	67	20,593	282	65,545
4 Illinois ¹	1905	3	273,827	13	12,980	230	161,153	230	161,153	.....	.....	.....	.....
5 Indiana.....	1905	38	7,012,839	148	149,770	2,961	1,909,312	2,927	1,900,501	.....	.....	34	8,811
6	1900	51	7,080,415	224	274,105	3,912	3,251,819	3,908	3,250,119	.....	.....	4	1,700
7	1890	11	2,897,100	52	45,377	1,530	914,539	1,499	907,201	17	5,860	14	1,478
8 Kansas ²	1905	4	302,903	10	11,660	258	231,251	258	231,251	.....	.....	.....	.....
9 Missouri ²	1905	3	2,660,106	97	133,912	1,002	579,493	994	577,289	.....	.....	8	2,204
10 New Jersey.....	1905	8	161,743	7	5,530	146	89,705	146	89,705	.....	.....	.....	.....
11	1900	4	218,990	8	6,326	230	163,245	230	163,245	.....	.....	.....	.....
12	1890	12	967,923	22	16,288	1,082	720,184	1,048	717,104	.....	.....	34	3,080
13 New York ⁴	1905	8	323,714	12	12,558	306	199,338	299	198,148	.....	.....	7	1,190
14	1900	7	334,035	11	15,160	228	164,291	226	163,979	.....	.....	2	312
15 Ohio ⁴	1905	8	2,701,472	53	72,134	1,127	828,168	1,127	828,168	.....	.....	.....	.....
16	1900	7	2,039,134	25	22,570	477	376,006	477	376,006	.....	.....	.....	.....
17 Pennsylvania.....	1905	51	24,902,320	532	685,794	7,832	5,725,582	7,736	5,698,312	25	7,446	71	19,824
18	1900	46	14,661,120	307	435,015	6,459	4,706,720	6,368	4,679,801	20	4,901	71	22,018
19	1890	28	9,715,850	104	145,152	5,399	3,258,692	5,172	3,192,078	50	14,733	177	51,881
20 West Virginia ³	1905	17	1,684,650	48	57,573	699	643,852	698	643,394	.....	.....	1	458
21 All other states.....	⁶ 1905	3	642,836	8	14,160	319	178,236	316	177,336	.....	.....	2	900
22	⁷ 1900	9	2,283,428	40	58,807	596	367,592	592	366,463	.....	.....	4	1,129
23	⁸ 1890	49	4,772,703	114	131,295	3,971	2,266,488	3,914	2,257,682	.....	.....	57	8,906

¹ Not reported in 1890.² Included in "all other states" in 1890 and 1900.³ None reported in 1890 and 1900.⁴ Included in "all other states" in 1890.

SUMMARY, BY STATES: 1890 TO 1905.

Miscella- neous expenses.	Cost of materials used.	VALUE OF PRODUCTS.				FURNACES.											
		Total.	Building glass.	Pressed and blown glass and bottles and jars.	All other prod- ucts.	Total.		Pot.		Tank. ¹							
						Num- ber.	Pot capac- ity.	Num- ber.	Num- ber of pots.	Continuous.			Intermittent.				
										Num- ber.	Num- ber of rings.	Pot capac- ity.	Num- ber.	Tons capac- ity.	Pot capac- ity.		
\$1,210,797 1,365,865 1,069,545	\$8,210,702 4,679,084 4,621,535	\$21,557,531 17,096,234 13,928,296	\$21,380,305 16,681,092 13,826,135	\$53,900 415,142 102,161	\$123,326 415,142 102,161	342 241 195	4,891 3,726 2,024	152 193 195	2,079 2,296 2,024	79 34 34	913 433 433	2,739 1,299 1,299	11 14 14	73 131 131	73 131 131	1 2 3	
30,207	72,152	281,539	281,559			3	55	1	13	2	14	42					4
212,755	1,406,539	3,790,618	3,790,618			64	950	46	445	14	159	477	4	23	28		5
348,665	1,319,675	5,711,948	5,696,948		15,000	95	1,377	82	825	12	179	537	1	15	15		6
297,127	510,845	1,831,745	1,791,745		40,000	27	333	27	333								7
23,692	81,885	381,084	381,084			6	84	4	24	2	20	60					8
55,785	524,966	1,036,433	1,036,433			7	132	5	120	2	4	12					9
3,614	64,746	163,922	163,922			4	48	3	24	1	8	24					10
12,141	86,720	274,011	267,611		6,400	6	96	3	24	3	24	72					11
40,258	366,203	1,316,170	1,295,100		21,070	24	188	24	188								12
22,665	176,340	447,210	406,310	36,900	4,000	10	172	8	76	2	32	96					13
14,569	120,748	346,790	289,779		57,011	9	65	9	65								14
89,238	602,920	1,575,126	1,575,126			15	359	9	158	6	67	201					15
19,505	158,526	671,422	671,422			15	228	13	162	2	22	66					16
696,334	4,717,404	12,125,783	11,989,457	17,000	119,326	99	2,661	48	978	44	546	1,638					17
867,168	2,697,041	9,213,545	8,881,897		331,648	95	1,745	66	1,014	16	205	615	7	35	45		18
391,847	2,236,396	6,406,924	6,406,924			61	750	61	750					116	116		19
46,840	375,026	1,323,896	1,323,896			27	310	22	145	5	55	165					20
29,667	188,724	431,900	431,900			7	120	6	96	1	8	24					21
103,817	296,374	878,518	873,435		5,083	21	215	20	206			9					22
340,313	1,608,091	4,373,457	4,332,366		41,091	83	753	83	753								23

¹ Included in "all other states" in 1900. Not reported in 1890.

² Includes establishments distributed as follows: California, 1; Delaware, 1; Michigan, 1.

³ Includes establishments distributed as follows: Delaware, 1; Illinois, 1; Maryland, 2; Massachusetts, 1; Missouri, 2; West Virginia, 2.

⁴ Includes establishments distributed as follows: Delaware, 1; Illinois, 5; Maryland, 4; Massachusetts, 4; Michigan, 1; Missouri, 3; New York, 9; Ohio, 22.

In 1890 the number of establishments engaged in the manufacture of building glass was 100; in 1900 the number was 124, an increase of 24 per cent; and in 1905 the number reported was 138, an increase of 11.3 per cent between 1900 and 1905 and 38 per cent between 1890 and 1905. Of the 138 establishments reported in 1905, 103, or 74.6 per cent, were engaged in the manufacture of window glass; 17, or 12.3 per cent, plate glass; and 18, or 13.1 per cent, "all other glass."

The amount of capital invested in establishments producing building glass was \$18,353,576 in 1890, \$26,617,122 in 1900, and \$40,666,410 in 1905. The per cent of increase was 45 from 1890 to 1900, 52.8 from 1900 to 1905, and 121.6 from 1890 to 1905. The average amount of capital invested per establishment reported was \$183,536 in 1890, \$214,654 in 1900, and \$294,684 in 1905. In 1890 the proprietors and firm members and their salaries were included with salaried officials, clerks, etc., but they were not so included in 1900 nor in 1905. This fact should be considered in making a comparison with 1890 figures for salaried officials, clerks, etc.

The cost of materials used shows but a slight increase between 1890 and 1900, but from 1900 to 1905 the increase was \$3,531,618, or 75.5 per cent. Of the total cost of materials in 1905, about \$2,000,000 was expended in glass sand, soda ash, and salt cake, about \$2,700,000 in fuel, and about \$1,000,000 in lumber, boxes, etc., which shows that about one-fourth of the total cost was for principal glassmaking materials, one-third for melting materials, and one-eighth for packing materials.

The value of products between 1890 and 1900 increased \$3,167,938, or 22.7 per cent, and between 1900 and 1905, \$4,461,297, or 26.1 per cent. The average value of the total product per establishment was \$139,283 in 1890, \$137,873 in 1900, and \$156,214 in 1905. During the census year 1905 building glass establishments in New York and Pennsylvania produced pressed and blown glass and bottles and jars to the value of \$53,900.

The number of furnaces increased 46, or 23.6 per cent, from 1890 to 1900, while the pot capacity increased 1,702, or 84.1 per cent. Between 1900 and 1905 the number of furnaces increased 1, or four-tenths of 1 per cent, while the pot capacity increased 1,165, or 31.3 per cent. The increase in pot capacity from 1890 to 1905 was 141.6 per cent. The number of pot furnaces decreased 43, or 22.1 per cent, from 1890 to 1905, while the number of pots remained practically the same as in 1890. Between 1900 and 1905 continuous tank furnaces increased in number 45, or 132.4 per cent, and in

pot capacity 1,440, or 110.9 per cent. The figures for total furnaces show that the average pot capacity per furnace was 10 in 1890, 15 in 1900, and 20 in 1905. The average pot capacity of the continuous tank furnaces was 38 in 1900 and 34 in 1905. These figures illustrate the greater capacity of the continuous tank as compared with the pot furnace.

In the manufacture of building glass the states of Pennsylvania and Indiana ranked first and second, respectively, in value of products, capital, and number of establishments; Ohio was third in value of products and capital, and, with New York, fourth in number of establishments; West Virginia was fourth in value of products, fifth in capital, and third in number of establishments; Missouri was fifth in value of products, fourth in capital, and, with New Jersey and Illinois, seventh in number of establishments; New York was sixth in value of products and capital, and, with Ohio, fourth in number of establishments; Kansas was seventh in value of products and capital and sixth in number of establishments; Illinois was eighth in value of products and capital, and, with Missouri and New Jersey, seventh in number of establishments; New Jersey was ninth in value of products and capital, and, with Missouri and Illinois, seventh in number of establishments.

Since the census of 1900 a machine for the manufacture of window glass has been invented, and it is used exclusively by one company, which has acquired rights to the machine in the United States. In 1905 this company operated 15 continuous tank furnaces, equipped with 124 of these machines. The products of these machines had but little effect on the total output of window glass during the census of 1905, as the machine was being perfected during that year. If, as it is claimed, however, the machine is a complete success, the effect on the industry may be inferred, as its operations are entirely automatic.

Plate glass manufacturers have recently taken up the production of glass in imitation of marble. This substitute is peculiarly adapted for use in restaurants, hospitals, and other places where cleanliness is essential, for, unlike marble, it does not absorb moisture. It is cast in the same manner as plate glass and is afterwards ground and polished. Plate glass establishments are also manufacturing a thin plate, which is made in the same way as that of ordinary thickness, except that the original cast is thinner.

Pressed and blown glass.—Table 5 is a comparative summary of the statistics for establishments manufacturing pressed and blown glass and bottles and jars, as returned at the censuses of 1890, 1900, and 1905.

MANUFACTURES.

TABLE 5.—PRESSED AND BLOWN GLASS AND BOTTLES AND JARS—

STATE.	Cen- sus.	Num- ber of estab- lish- ments.	Capital.	SALARIED OFFI- CIALS, CLERKS, ETC.		WAGE-EARNERS AND WAGES.							
				Num- ber.	Salaries.	Total.		Men 16 years and over.		Women 16 years and over.		Children under 16 years.	
						Average number.	Wages.	Average number.	Wages.	Average number.	Wages.	Average number.	Wages.
1 United States ...	1905	261	\$48,722,741	2,112	\$2,784,222	49,089	\$26,742,058	39,348	\$24,500,390	3,430	\$861,362	6,311	\$1,380,306
2	1900	231	34,806,781	1,653	1,980,393	40,916	18,055,037	30,372	15,901,620	3,509	835,100	7,035	1,318,317
3	1890	194	22,613,274	² 803	² 894,449	32,910	13,726,058	24,431	12,472,386	1,818	311,652	6,661	942,020
4 Illinois.....	1905	10	3,302,345	106	138,350	4,538	2,850,479	4,028	2,751,625	127	26,853	383	72,001
5	1900	5	2,143,658	71	106,600	3,291	1,615,786	2,594	1,491,391	148	28,456	549	95,939
6	1890	8	1,353,978	28	40,210	2,291	937,515	1,747	871,420	20	3,860	524	62,235
7 Indiana.....	1905	58	6,871,646	284	399,229	9,059	4,728,818	7,735	4,415,850	487	101,018	837	211,950
8	1900	59	5,694,974	285	375,122	9,103	3,974,228	7,002	3,557,923	634	129,808	1,467	286,497
9	1890	10	659,463	27	30,305	1,480	554,610	1,134	514,903	180	21,951	166	17,756
10 Kansas ³	1905	5	288,003	17	16,950	460	215,520	362	192,950	44	9,758	54	12,812
11 Maryland.....	1905	6	523,199	28	35,328	649	354,235	502	324,328	34	9,124	113	20,783
12	1900	5	479,534	28	36,576	657	275,354	477	249,756	54	8,673	126	16,925
13	1890	5	371,205	10	9,768	762	358,783	448	317,005	24	6,864	290	34,914
14 Massachusetts ⁴	1905	4	610,763	45	64,988	855	441,541	729	409,741	96	24,500	30	7,300
15	1900	4	255,949	38	27,660	375	179,329	331	169,891	19	4,392	25	5,046
16 Missouri.....	1905	3	558,928	14	24,962	559	358,961	475	340,331	8	1,800	76	16,830
17 New Jersey.....	1905	19	6,142,712	362	353,458	5,361	3,055,679	4,669	2,907,054	124	29,603	568	119,022
18	1900	22	5,178,672	309	278,634	5,153	2,299,500	4,136	2,115,061	170	32,726	847	151,713
19	1890	22	2,776,971	130	116,331	4,606	2,009,916	3,553	1,888,694	42	8,405	1,011	112,817
20 New York.....	1905	20	3,131,727	130	189,885	2,847	1,625,238	2,501	1,517,396	103	25,635	243	82,207
21	1900	20	1,908,799	106	124,538	2,328	1,140,973	1,975	1,075,992	73	17,831	280	47,150
22	1890	21	1,507,891	45	52,400	2,505	1,054,934	1,869	952,903	92	17,025	544	85,006
23 Ohio.....	1905	29	6,552,723	256	372,134	6,717	3,683,437	5,194	3,344,302	787	186,605	736	152,530
24	1900	21	3,412,379	174	226,459	4,069	1,691,378	3,028	1,468,952	405	96,017	636	126,409
25	1890	37	2,979,987	163	171,519	5,134	2,037,452	3,752	1,836,233	538	74,227	844	126,992
26 Pennsylvania.....	1905	71	15,709,860	635	911,319	12,962	6,792,858	9,338	5,960,176	1,082	297,694	2,542	534,988
27	1900	73	13,626,067	535	675,363	12,961	5,580,771	8,768	4,658,460	1,526	409,349	2,667	512,962
28	1890	71	10,743,199	320	373,488	13,111	5,469,828	9,652	4,898,848	699	139,956	2,760	431,024
29 Virginia ⁵	1905	4	402,459	11	17,868	472	263,657	404	248,128	.....	.....	68	15,529
30 West Virginia.....	1905	22	2,615,210	141	151,282	2,974	1,410,329	2,079	1,209,347	445	106,695	450	94,287
31	1900	14	1,265,624	80	93,016	1,886	734,676	1,258	603,817	468	103,748	160	27,111
32	1890	7	825,313	34	46,946	1,371	511,079	970	446,349	190	32,632	211	32,098
33 All other states.....	⁶ 1905	10	2,013,166	83	108,469	1,636	961,306	1,332	879,162	93	42,077	211	40,067
34	⁷ 1900	8	841,125	27	36,420	1,093	563,042	803	510,377	12	4,100	278	48,565
35	⁸ 1890	13	1,395,267	46	53,482	1,650	791,941	1,306	746,031	33	6,732	311	39,178

¹Not reported in 1890.²Includes proprietors and firm members with their salaries; number only reported in 1905 and 1900, but not included in this table.³Not reported in 1890 and 1900.⁴Included in "all other states" in 1890.⁵Included in "all other states" in 1900. Not reported in 1890.

COMPARATIVE SUMMARY, BY STATES: 1890 TO 1905.

Miscellaneous expenses.	Cost of materials used.	VALUE OF PRODUCTS.					FURNACES.										
		Total.	Pressed and blown glass.	Bottles and jars.	Building glass.	All other products.	Total.		Pot.		Tank. ¹						
							Num-ber.	Pot capac-ity.	Num-ber.	Number of pots.	Continuous.			Intermittent.			
											Num-ber.	Number of rings.	Pot capac-ity.	Num-ber.	Tons capac-ity.	Pot capac-ity.	
\$4,700,710	\$17,934,820	\$58,050,467	\$21,925,258	\$33,608,063	\$317,556	\$2,199,590	629	7,840	246	2,730	287	2,354	4,708	96	402	402	1
2,222,776	12,051,925	39,443,478	17,076,125	21,676,791	.....	690,562	563	6,215	258	2,811	172	1,317	2,634	133	770	770	2
1,198,151	7,519,450	27,122,708	18,601,244	8,521,464	.....	.....	369	2,908	369	2,908	.....	.....	.....	.....	.....	.....	3
349,700	1,328,085	5,338,181	149,265	4,949,156	.....	239,760	38	708	11	138	22	270	540	5	30	30	4
210,329	664,858	2,810,398	131,618	2,678,780	.....	.....	27	423	9	117	11	133	266	7	40	40	5
105,387	566,905	1,945,790	949,883	995,907	.....	.....	18	140	18	140	.....	.....	.....	.....	.....	.....	6
497,899	4,152,300	10,916,311	2,859,087	7,213,456	.....	843,768	101	1,534	24	304	77	615	1,230	.....	.....	.....	7
341,500	3,262,466	9,045,935	2,691,787	6,327,468	.....	26,680	142	1,528	43	529	63	397	794	36	205	205	8
63,257	354,529	1,163,664	672,179	491,485	.....	.....	21	116	21	116	.....	.....	.....	.....	.....	.....	9
18,200	273,208	577,636	64,697	407,868	.....	105,071	5	94	1	6	5	44	88	.....	.....	.....	10
31,411	158,732	589,589	46,191	536,478	.....	6,920	10	109	8	91	1	5	10	1	8	8	11
22,313	120,759	454,633	100,000	346,633	.....	8,000	8	85	7	79	.....	.....	.....	1	5	5	12
15,966	139,971	674,900	674,900	.....	.....	.....	7	77	7	77	.....	.....	.....	.....	.....	.....	13
97,244	316,080	1,011,373	558,911	50,000	.....	402,462	7	52	7	52	.....	.....	.....	.....	.....	.....	14
13,483	130,095	402,258	382,091	20,167	.....	.....	5	137	5	47	.....	.....	.....	1	50	90	15
77,313	182,905	744,593	119,010	607,383	.....	18,200	5	72	.....	.....	3	36	72	.....	.....	.....	16
472,133	1,791,493	6,286,273	181,559	6,066,714	38,000	.....	76	965	20	159	45	373	746	11	60	60	17
229,514	1,401,980	4,819,811	21,300	4,452,219	.....	346,292	78	928	30	231	34	309	618	14	79	79	18
75,751	944,750	3,901,982	1,235,426	2,666,556	.....	.....	56	281	56	281	.....	.....	.....	.....	.....	.....	19
362,822	1,235,633	3,832,556	1,901,624	1,860,245	50,000	20,687	49	548	23	208	22	162	324	4	16	16	20
130,936	778,842	2,410,188	1,173,784	1,195,276	.....	41,128	42	464	20	182	14	115	230	8	52	52	21
89,366	582,180	2,000,842	1,307,156	693,686	.....	.....	39	259	39	259	.....	.....	.....	.....	.....	.....	22
694,324	2,233,601	7,451,082	3,954,660	2,961,727	50,000	484,695	78	976	34	462	30	236	472	14	42	42	23
136,007	1,094,638	3,875,661	2,738,289	1,058,955	.....	78,417	45	548	29	377	10	73	146	6	25	25	24
196,432	1,139,651	4,073,385	3,554,370	519,015	.....	.....	55	521	55	521	.....	.....	.....	.....	.....	.....	25
1,569,613	4,607,790	15,545,910	9,406,183	5,934,144	179,556	26,027	170	1,807	59	959	49	372	744	32	104	104	26
1,000,711	3,738,422	12,797,585	8,453,550	4,162,990	.....	181,045	166	1,675	102	1,103	28	207	414	36	158	158	27
519,331	3,058,596	10,772,213	8,700,124	2,072,089	.....	.....	136	1,232	136	1,232	.....	.....	.....	.....	.....	.....	28
35,679	169,461	549,031	.....	549,031	.....	.....	5	82	.....	.....	6	41	82	.....	.....	.....	29
349,806	884,454	3,274,667	2,620,665	602,002	.....	52,000	65	662	27	336	14	106	212	24	114	114	30
109,904	557,368	1,770,553	1,379,706	381,847	.....	9,000	32	224	12	134	.....	.....	.....	20	90	90	31
40,805	277,033	945,234	945,234	.....	.....	.....	17	144	17	144	.....	.....	.....	.....	.....	.....	32
144,566	601,088	1,933,265	63,406	1,869,859	.....	.....	20	231	2	15	13	94	188	5	28	28	33
28,079	302,497	1,056,456	4,000	1,052,456	.....	.....	17	203	1	12	12	83	166	4	25	25	34
91,856	455,835	1,644,698	561,972	1,082,726	.....	.....	20	138	20	138	.....	.....	.....	.....	.....	.....	35

¹Includes establishments distributed as follows: California, 3; Colorado, 1; Georgia, 1; Indian Territory, 1; Michigan, 1; South Carolina, 1; Tennessee, 1; Wisconsin, 1.

²Includes establishments distributed as follows: California, 1; Colorado, 1; Georgia, 1; Michigan, 1; Missouri, 1; Virginia, 2; Wisconsin, 1.

³Includes establishments distributed as follows: California, 1; Colorado, 1; Georgia, 2; Kentucky, 2; Maryland, 2; Massachusetts, 2; Missouri, 2; Wisconsin, 1.

To make the figures comparable and also to avoid disclosing the individual operations of establishments in states in which there were few, the statistics for 1905, like those for 1900, treat as a single branch of the glass industry the manufacture of pressed and blown glass and bottles and jars.

Table 5 shows that the number of establishments engaged in the manufacture of pressed and blown glass and bottles and jars was 194 in 1890, 231 in 1900, and 261 in 1905, an increase of 19.1 per cent between 1890 and 1900, 13 per cent between 1900 and 1905, and 34.5 per cent between 1890 and 1905. The amount of capital invested increased from \$22,613,274 in 1890 to \$34,806,781 in 1900, and to \$48,722,741 in 1905. The increase between 1890 and 1900 was 53.9 per cent; between 1900 and 1905, 40 per cent; and between 1890 and 1905, 115.5 per cent.

The average number of men, women, and children reported, which was 32,910 in 1890, 40,916 in 1900, and 49,089 in 1905, increased 24.3 per cent from 1890 to 1900, 20 per cent from 1900 to 1905, and 49.2 per cent from 1890 to 1905. Wages during the same periods increased from \$13,726,058 to \$18,055,037, and then to \$26,742,058. The per cent of increase was 31.5 per cent from 1890 to 1900, 48.1 per cent from 1900 to 1905, and 94.8 per cent from 1890 to 1905.

The value of products in 1890 was \$27,122,708; in 1900, \$39,443,478; and in 1905, \$58,050,467. The per cent of increase was 45.4 from 1890 to 1900, 47.2 from 1900 to 1905, and 114 from 1890 to 1905. The value of pressed and blown glass manufactured decreased from \$18,601,244 in 1890 to \$17,076,125 in 1900, but increased to \$21,925,258 in 1905. These figures show a decrease of 8.2 per cent between 1890 and 1900, an increase of 28.4 per cent between 1900 and 1905, and an increase of 17.9 per cent between 1890 and 1905. The value of bottles and jars manufactured was \$8,521,464 in 1890, \$21,676,791 in 1900, and \$33,608,063 in 1905. The rate of increase was 154.4 per cent from 1890 to 1900, 55 per cent from 1900 to 1905, and 294.4 per cent from 1890 to 1905. The value of all other products increased from \$690,562 in 1900 to \$2,199,590 in 1905, or 218.5 per cent.

In 1890, 68.6 per cent of the total value of products was pressed and blown glass and 31.4 per cent bottles and jars; in 1900, 43.3 per cent was pressed and blown glass, 55 per cent bottles and jars, and 1.7 per cent all other products; and in 1905, 37.8 per cent was pressed and blown glass, 57.9 per cent bottles and jars, 0.5 per cent building glass, and 3.8 per cent all other products. The average value of products for each establishment in 1890 was \$139,808; in 1900, \$170,751; and in 1905, \$222,416.

The number of furnaces reported in 1890 was 369, as compared with 563 in 1900 and 629 in 1905. The rate of increase was 52.6 per cent from 1890 to 1900, 11.7 per cent from 1900 to 1905, and 70.5 per cent from 1890

to 1905. The total pot capacity of all furnaces increased from 2,908 in 1890 to 6,215 in 1900, and to 7,840 in 1905. The per cent of increase was 113.7 from 1890 to 1900, 26.1 from 1900 to 1905, and 169.6 from 1890 to 1905. The average pot capacity per establishment in 1890 was 15 pots; in 1900, 27 pots; and in 1905, 30 pots. The number of pot furnaces in 1890 was 369; in 1900, 258; and in 1905, 246. The decrease from 1890 to 1900 was 30.1 per cent; from 1900 to 1905, 4.7 per cent; and from 1890 to 1905, 33.3 per cent. Tank furnaces, which were considered an experiment in 1890, were not reported at that census, but at the census of 1900, 172 continuous tank furnaces, with 1,317 rings, equivalent to 2,634 pots, were returned. In 1905, 287 continuous tank furnaces, with 2,354 rings, equivalent to 4,708 pots, were reported. The increase in number of continuous tank furnaces was 66.9 per cent; in number of rings, 78.7 per cent; and in pot capacity, 78.7 per cent. The number of intermittent tank furnaces decreased from 133 in 1900 to 96 in 1905, or 27.8 per cent, and the tons capacity, which is the same as the pot capacity, decreased from 770 to 402, or 47.8 per cent.

The remarkable increase in the average amount of capital invested, number of wage-earners employed, and the pot capacity of establishments engaged in the manufacture of pressed and blown glass and bottles and jars shows the growth and progress of this branch of the glass industry. Since 1890, in addition to the establishment of new plants, old factories have been enlarged, additional furnaces erected, and automatic machinery for blowing bottles and jars and stamping glassware has been installed. These improvements have greatly added to the capacity of the plants of the country and explain the increase in value of products. The increase in the value of all other products was due to the manufacture of paper boxes, packing, etc., caused by the demand of the trade in general for a more attractive and neater package.

The increase since 1900 in the number of establishments manufacturing pressed and blown glass and bottles and jars has been principally in the Western glass producing states. Illinois showed a gain of 5 establishments; Kansas, which appears for the first time as a glass producing state, reported 5; Ohio and West Virginia each gained 8, and Missouri, 2. The number of establishments in Indiana decreased 1. The Eastern states which show gains are Maryland, 1 establishment, and Virginia, 2. New Jersey lost 3 establishments and Pennsylvania, 2.

The rank of states in 1905, according to the number of establishments, amount of capital invested, number of wage-earners employed, and value of products, as shown by Table 5, was: Pennsylvania first, Indiana second, and Ohio third. The rank of New Jersey was fourth in amount of capital invested, number of wage-earners employed, and value of products, and sixth in

number of establishments; Illinois was fifth in number of wage-earners, amount of capital invested, value of products, and seventh in number of establishments; West Virginia was fourth in number of establishments, sixth in number of wage-earners, and seventh in capital invested and value of products; New York was fifth in number of establishments, sixth in capital invested and value of products, and seventh in number of wage-earners; Maryland was eighth in number of establishments, ninth in number of wage-earners, and tenth in capital and value of products; Kansas was ninth in number of establishments, eleventh in value of products, and twelfth in capital and number of wage-earners; Virginia, which with Massachusetts was tenth in number of establishments, was eleventh in capital and number of wage-earners, and twelfth in value of products; Massachusetts, which with Virginia was tenth in number of establishments, was eighth in capital, number of wage-earners, and value of products.

One of the recent improvements in the manufacture of pressed ware is in the production of glass for signal purposes. Although many attempts have been made to produce a solid red glass for use in signals, they have been attended with but little success. The red glass heretofore produced and used in the manufacture of signal roundels, lenses, etc., was so black when used in the solid state that it hardly permitted any rays of light to penetrate it. It was necessary, therefore, to spread this red glass in very thin layers or films on transparent glass of the desired shape, a method technically known as the "plating," "casing," or "flashing" process. Recently an acknowledged expert in colored glass stated that after experimenting many years he had succeeded in producing a signal glass in solid red which would meet all requirements. He also stated that he had recently produced a glass which is unaffected by sudden changes of temperature. Although articles of this quality of glass are not yet produced for commercial use, it is claimed that its advantages over the present commercial glass had been demonstrated by heating a globe made by his new formula, and while it was hot sprinkling it with cold water. The result of such treatment of ordinary glass is well known, but the globe so tested failed to show the slightest crack.

During the past five years many machines for the manufacture of bottles have been invented. One of these machines has been very successful and seems to meet all the requirements of the bottle industry, as it can be built to produce a narrow or wide neck bottle of any shape. This machine has so recently come into use that it was not a factor in the production of bottles during the census year. At present it is employed in the manufacture of beer bottles, a branch of the industry in which the demand is for a uniform pint or quart bottle. As the beer industry consumes more bottles than any other commercial enterprise, it is evident that the object of the machine manufacturers was to enter

the most remunerative field of bottle production and at the same time to develop their machine in the manufacture of the simplest and most uniform bottle. The mechanical production of the other forms of bottles will be taken up as rapidly as the development of the machine permits. It is also probable that this machine will invade the fields already occupied by other glass blowing machines, for it is entirely automatic, not only in blowing, but in collecting its own glass, and with the perfection of a ware conveyor attachment, bottles will be manufactured and annealed entirely by machinery. The capacity of this machine is estimated at 12 bottles per minute. One man, a machine tender, can take care of three machines. As the speed of the machines is not sufficient for them to run hot, they can be operated twenty-four hours per day, which would make the output about 360 gross of bottles per day at a labor expense of three machine tenders on eight hour turns, or two on twelve hour turns.

Materials.—Table 6 is a comparative summary showing the quantity and cost of materials used in the manufacture of glass for 1900 and 1905.

TABLE 6.—Glass manufacture—quantity and cost of materials used, with per cent of increase: 1905 and 1900.

	1905	1900	Per cent of increase.
Materials used, total cost.....	\$26,145,522	\$16,731,009	56.3
Glass sand:			
Tons.....	769,792	581,720	32.3
Cost.....	\$1,547,147	\$846,822	82.7
Soda ash (carbonate of soda):			
Tons.....	215,462	157,779	36.6
Cost.....	\$4,068,804	\$2,259,939	80.0
Salt cake (sulphate of soda):			
Tons.....	53,905	53,257	1.2
Cost.....	\$802,611	\$518,590	54.8
Nitrate of soda:			
Tons.....	11,915	10,770	10.6
Cost.....	\$511,854	\$320,937	59.5
Limestone:			
Tons.....	115,655	91,015	27.1
Cost.....	\$274,209	\$181,717	50.9
Lime:			
Hundredweight.....	933,074	794,679	17.4
Cost.....	\$241,755	\$147,901	63.5
Arsenic:			
Pounds.....	2,676,650	2,349,261	13.9
Cost.....	\$92,574	\$112,630	17.8
Carbon:			
Tons.....	3,750	4,155	19.7
Cost.....	\$22,333	\$17,000	31.4
Manganese:			
Pounds.....	3,096,939	1,493,538	107.4
Cost.....	\$101,279	\$57,493	76.2
Litharge (red lead):			
Pounds.....	9,613,649	8,386,106	14.6
Cost.....	\$555,130	\$490,200	13.2
Potash or pearl ash:			
Pounds.....	5,446,338	4,406,211	23.6
Cost.....	\$228,608	\$186,847	22.4
Grinding sand:			
Tons.....	410,856	265,438	54.8
Cost.....	\$332,013	\$166,040	100.0
Rouge:			
Pounds.....	1,098,566	837,536	31.2
Cost.....	\$29,869	\$24,747	20.7
Plaster of Paris:			
Tons.....	33,939	23,066	47.1
Cost.....	\$169,988	\$108,531	56.6
Fire clay or pot clay:			
Pounds.....	42,910,286	32,151,017	33.5
Cost.....	\$290,444	\$221,183	31.3
Pots, not including those made at works:			
Number.....	9,343	8,941	4.5
Cost.....	\$432,591	\$381,147	13.5
Flattening stones:			
Number.....	410	272	50.7
Cost.....	\$22,266	\$16,344	36.2
Fuel:			
Total cost.....	\$6,243,006	\$3,203,146	94.9
Natural gas, cost.....	\$2,777,157	\$1,575,278	76.3

1 Decrease.

TABLE 6.—Glass manufacture—quantity and cost of materials used, with per cent of increase: 1905 and 1900—Continued.

	1905	1900	Per cent of increase.
Materials used, total cost—Continued.			
Fuel—Continued.			
Total cost—Continued.			
Oil—			
Gallons.....	18,346,660	12,690,856	44.6
Cost.....	\$526,868	\$409,158	28.8
Coal—			
Tons.....	1,488,476	755,463	97.0
Cost.....	\$2,748,766	\$1,074,074	155.9
All other fuel.....	\$190,215	\$144,636	31.5
Rent of power and heat.....	\$42,164	\$62	.....
Lumber, casks, barrels, boxes, etc.	\$4,750,213	\$3,390,627	40.1
Caps, metal trimmings, and rubber supplies	\$1,696,145	\$1,522,917	11.4
Supplies used in repairs on tanks and furnaces.....	\$741,953	\$531,916	39.5
Mill supplies.....	\$265,444	\$138,434	91.7
All other materials.....	\$2,192,528	\$991,751	121.1
Freight.....	\$490,594	\$894,088	¹ 45.1

¹ Decrease.

Table 6 shows that the cost of materials used increased from \$16,731,009 in 1900 to \$26,145,522 in 1905, an increase of \$9,414,513. The per cent of increase was 56.3.

The amount of each ingredient used in glassmaking, except carbon, increased between 1900 and 1905. The proportional increase in the amount used was greatest for manganese, for which the per cent of increase was 107.4, and smallest for salt cake, for which the per cent of increase was 1.2. The cost of each item, with the exception of arsenic, also increased, the percentages of increase varying from 82.7 for sand to 13.2 for litharge. The differences between the percentages of increase in quantity and in cost suggest that the average cost per unit has increased in a marked degree for all of the principal constituents and decreased only in the case of a few auxiliary materials.

Silica in the form of sand is the only constituent of glass that is absolutely essential and enters the composition of all varieties of glass as its true foundation. Silica as sand occurs in nature very abundantly. Vast deposits are found in the New England states, Pennsylvania, New Jersey, Maryland, Illinois, Missouri, and Minnesota. Many of these deposits show by analysis 99 per cent silica. The proportion of silica used varies according to the character of glass desired. An increase in the percentage of silica in any glass increases the resistance of the glass to corrosion and decay and also increases the resistance to melting and fusing. As the various grades of sand contain different percentages of impurities, only the finest grade of sand is used when a colorless and brilliant glass is desired. Iron, alumina, and organic matter are the principal impurities present, alumina generally being present as clay and gravel. Many of these impurities are removed by washing and roasting, but the iron and organic matter can be removed or neutralized only by chemicals. Iron when present imparts to glass a greenish tint, but this can be corrected by the use of manganese. The or-

ganic matter carbonizes in the pot or tank during the "melt" and is removed by the use of arsenic.

The quantity of glass sand reported in 1900 was 581,720 tons, and in 1905, 769,792 tons, an increase of 32.3 per cent. The cost increased from \$846,822 in 1900 to \$1,547,147 in 1905, or 82.7 per cent for the five-year period. The average cost in 1905 was \$2.01 per ton, as compared with \$1.46 in 1900, an increase of 55 cents per ton.

The bases used include sodium carbonate, sodium sulphate, nitrate of soda, calcium carbonate, litharge, and potash.

Sodium carbonate, or soda ash, is the principal base of nearly all modern commercial glass. It was also used by the ancient glassmakers in the form of natron, which was obtained from the natron lakes in Egypt. This natron contained carbonate, sulphate, and chloride of sodium (common salt), and was generally impure. Soda ash, obtained from the ashes of weeds and plants, was also in use, but seldom contained over 30 per cent of soda. In 1790 glassmaking was stimulated by the discovery of a process by Nicholas Le Blanc, whereby chloride of sodium was converted into soda. Soda ash made by this process remained in general use until 1863, when it was supplanted by a process devised by Ernest Solvay, which consists of decomposing sodium chloride by ammonium bicarbonate. It is claimed by glassmakers that soda ash made by the Solvay process does not contain as much iron or carbon as does that obtained by the Le Blanc process. The principal supply of soda ash used in glassmaking in the United States was formerly imported, but in recent years it has been supplied by domestic factories. Since 1900 additional establishments have engaged in the manufacture of soda ash, and the result has been a still further decrease in the amount imported. The report of the Bureau of Statistics, of the Department of Commerce and Labor, shows that 78,571,850 pounds of soda ash were imported in 1900 and 17,930,376 pounds in 1905. Soda ash is used in glassmaking as 48 per cent, 58 per cent, and dense 48 per cent and 58 per cent. Dense soda ash is less bulky, and in many cases is preferred for that reason; also because its carbonic acid is not driven off too rapidly, or before the glass has had sufficient time to clear. During the "melt" 100 pounds of soda ash loses about 30 per cent by volatilization.

The quantity of soda ash, or carbonate of soda, used in 1900 was 157,779 tons, and in 1905, 215,462 tons, an increase of 36.6 per cent. The cost increased from \$2,259,939 in 1900 to \$4,068,804 in 1905, or 80 per cent. The average cost in 1900 was \$14.32 per ton, and in 1905, \$18.88 per ton, an increase of \$4.56 per ton, or 31.8 per cent.

Salt cake, or sodium sulphate, is used as a base principally in the manufacture of window glass. It is prepared by the decomposition of chloride of sodium by

sulphuric acid. Manufacturers were originally induced to adopt salt cake as a base from motives of economy, but they now seldom use it except as noted above. It has been demonstrated that its decomposition by silicic acid is slow and difficult, and requires a high temperature. Auxiliary agents are often employed to aid fusion when it is used as a base.

The quantity of salt cake used in 1905 increased but 648 tons, or 1.2 per cent. The amount reported in 1900 was 53,257 tons, and in 1905, 53,905 tons. The cost, however, increased from \$518,590 in 1900 to \$802,611 in 1905, an increase of \$284,021, or 54.8 per cent. The average cost per ton in 1900 was \$9.74, and in 1905, \$14.89 per ton, a gain of \$5.15 per ton, or 52.9 per cent.

Sodium nitrate is used in the manufacture of glass as an auxiliary base. Its oxidizing properties facilitate fusion and also aid in expelling carbonaceous matter. It loses about 50 per cent during the melt.

In 1905 the amount of nitrate of soda reported was 11,915 tons, costing \$511,854, as compared with 10,770 tons, costing \$320,937, in 1900, an increase in quantity of 1,145 tons, or 10.6 per cent, and in cost of \$190,917, or 59.5 per cent. The average cost per ton in 1900 was \$29.80, and in 1905, \$42.96, a gain of \$13.20 per ton, or 44.3 per cent.

In glassmaking, calcium carbonate in the form of limestone and lime is used as a base. The action of limestone is to harden the glass and make it less soluble. Limestone is often used in preference to lime, as it gives off more carbonic acid gas during the melt. Combined with soda, limestone causes a violent agitation of the melted materials, which drives off cords, blisters, etc., tending to produce a more uniform glass. The action of lime in glassmaking is somewhat similar to that of limestone.

The quantity of limestone used in 1900 was 91,015 tons, costing \$181,717, as compared with 115,655 tons, costing \$274,209, in 1905, an increase in quantity of 24,640 tons, or 27.1 per cent, and in cost of \$92,492, or 50.9 per cent. The average cost in 1900 was \$2 per ton, and in 1905, \$2.37 per ton.

There were 794,679 hundredweight of lime used in 1900, costing \$147,901, compared with 933,074 hundredweight in 1905, costing \$241,755, an increase in quantity of 138,395 hundredweight, or 17.4 per cent, and in cost of \$93,854, or 63.5 per cent.

Lead in the form of litharge or red lead was first used in glassmaking in the seventeenth century, and its introduction is generally credited to English glassmakers. Its use was brought about by the change from open to closed pots, in order to protect the glass from impurities originating from the use of a fuel which had been substituted for wood. The use of covered pots retarded the fusion of the materials to such an extent that a better flux was required. Lead is used as a base in combination with potash, soda, etc., but potash is usually its co-base. It is used in the manufacture of

glassware, artificial gems, and optical glasses. Red lead was formerly imported, but the greater portion of the quantity now used is of domestic manufacture.

In 1900 the quantity of litharge used was 8,386,106 pounds, valued at \$490,200, and in 1905 the amount reported was 9,613,649 pounds, costing \$555,130. The increase in quantity was 14.6 per cent, and in cost 13.2 per cent. The average cost per pound both in 1900 and 1905 was 6 cents.

Potash or pearlash is used in glassmaking, principally in combination with litharge. Potash is more effective in facilitating fusion than soda, and in addition it has another property that can not be overlooked or underestimated, in that it exerts no color action. Since the discovery of the processes for manufacturing soda ash, the use of potash has decreased on account of the cost. During the melt 100 pounds of 72 per cent potash loses 20 per cent.

The amount of potash reported in 1900 was 4,406,211 pounds, costing \$186,847, and in 1905 the quantity was 5,446,338 pounds, costing \$228,608. The quantity used in 1905 increased 23.6 per cent, and the cost, 22.4 per cent. The average value per pound was 4 cents in both years.

Other auxiliary chemicals used in glassmaking are arsenic, carbon, and manganese. Arsenic, although a material greatly used in glassmaking, is not essential. It is an auxiliary used to purify the glass. As it acts directly on the carbonaceous impurities present, it is known in the glass world as the "great decarbonizer." Carbon is employed in glassmaking for two purposes: to lower the fusing point when salt cake is used as a base and to impart color when a glass from a straw yellow to a dark amber is desired. Manganese dioxide, generally known as manganese, is used in glassmaking principally as a "decolorizer" to neutralize the greenish tint imparted to glass by iron, hence it has been named the "great decolorizer." Since it parts very readily with a portion of its oxygen, manganese is also a powerful oxidizing agent.

The quantity of arsenic reported in 1900 was 2,349,261 pounds, costing \$112,630, as compared with 2,676,650 pounds in 1905, costing \$92,574; and thus, while the quantity used increased 13.9 per cent, the cost decreased 17.8 per cent.

In 1900 the quantity of carbon reported was 4,155 tons, costing \$17,000, and in 1905 the quantity was 3,750 tons, costing \$22,333, a decrease of 9.7 per cent in quantity and an increase of 31.4 per cent in cost.

The quantity of manganese reported in 1900 was 1,493,538 pounds, costing \$57,493, and in 1905 the amount was 3,096,939 pounds, costing \$101,279, an increase of 107.4 per cent in quantity and of 76.2 per cent in cost. The average cost per pound was 4 cents in 1900, and 3 cents in 1905.

The increase shown by the figures for 1905, as compared with those for 1900, in quantity and cost of

grinding sand, rouge, plaster of Paris, fire clay, pots, and flattening stones is substantial and is justified by the increase in production.

The question of fuel is undoubtedly the one most important to the glassmaker. With the aid of a good fuel a glassmaker can produce a comparatively good glass from impure materials, but he can not produce a good glass with a poor fuel, no matter how pure the materials may be. Since the establishment of the first glass factory in Virginia in 1608, manufacturers of glass have been influenced to a great extent in the location of their plants by the supply of fuel. The glass industry of the United States was situated east of the Alleghenies until the adoption of coal as a fuel in glassmaking by an establishment located in Pittsburg in 1797. After this date the attraction of cheap fuel in abundance caused manufacturers to locate their plants farther westward, and the tendency since that time has been to follow the fuel supply. The discovery of natural gas in western Pennsylvania caused many new factories to be located in the vicinity of the gas fields, and also induced many manufacturers in the east to move their plants to that locality. The excellent supply of fuel in Pennsylvania has enabled that state to maintain its prestige in the glass industry. The discovery of natural gas in Ohio again drew manufacturers westward, but the supply was soon exhausted. The discovery of natural gas in Indiana, together with the large bonuses and cheap or free gas offered by cities in that state, brought Indiana rapidly to the front as a glass producing state, but in the last few years the supply of natural gas has been gradually failing, and many factories have suspended operations or moved to new fields. Many manufacturers realize, however, that natural gas, although an ideal fuel in glassmaking, is unreliable, and that on account of the present construction of modern glass factories and the large increase in the amount of machinery used, plants can not be dismantled and moved as easily now as in former years. These considerations have caused manufacturers located in good coal districts to equip their factories with producer gas systems, thereby giving to factory locations a stability which was lacking when the location was determined by the presence of natural gas as a fuel. The discovery of natural gas in Kansas and West Virginia drew several glass factories from Indiana, and also induced many new concerns to locate in those states.

Gas, either natural or artificial, is the ideal fuel in glassmaking because it is not only the cleanest but also the one which furnishes better than any other fuel the even temperature so necessary in the manufacture of glass.

Natural gas is preferred to artificial because it is cheaper and gives more heat, but as the supply is unreliable, factories using it are compelled, sooner or later, to move or to adopt a new fuel. Producer gas, therefore, is probably the best fuel when everything is considered. Its heat is intense, its supply reliable, and as it is produced from slack coal, it is, at the same time, economical. There are many different producer systems in use, but the principle of each is practically the same.

Oil, which furnishes an intense and easily regulated heat, is becoming more generally used in glass manufacture, but it is more expensive than either gas or coal. The use of coal as a fuel in melting glass materials dates from the seventeenth century. While the heat produced is intense, it can not be distributed nor regulated as successfully as that generated from the other fuels, and, moreover, when used for direct heat, a costlier grade of coal is required than is necessary for making producer gas.

The cost of fuel is the largest item of expense in glassmaking. In 1900 it constituted 19.1 per cent of the total cost of materials, and in 1905, 23.9 per cent. The total cost of fuel in 1900 was \$3,203,146, of which \$1,575,278 was for natural gas, \$409,158 for oil, \$1,074,074 for coal, and \$144,636 for "all other fuel." In 1905 the total cost was \$6,243,006, of which \$2,777,157 was for natural gas, \$526,868 for oil, \$2,748,766 for coal, and \$190,215 for "all other fuel." The increase in the cost of total fuel was 94.9 per cent; of natural gas, 76.3 per cent; of oil, 28.8 per cent; of coal, 155.9 per cent; and of "all other fuel," 31.5 per cent. The proportions that the cost of the different items formed of the total cost for fuel at each census are as follows: Natural gas, 49.2 per cent in 1900 and 44.5 per cent in 1905; oil, 12.8 per cent in 1900 and 8.4 per cent in 1905; coal, 33.5 per cent in 1900 and 44 per cent in 1905; and "all other fuel," 4.5 per cent in 1900 and 3.1 per cent in 1905. The cost of fuel, however, in these tables represents only the amount paid for fuel which is purchased and does not represent all the fuel used, much of which is taken from premises owned or controlled by the establishments reporting.

The cost of lumber, casks, barrels, boxes, etc., was the second largest item of expense. In 1900 the cost was \$3,390,627, or 20.3 per cent of the total cost of all materials used, and in 1905 the amount reported was \$4,750,213, or 18.2 per cent of the total cost. The increase in cost in 1905 was 40.1 per cent.

Products.—Table 7 is a comparative summary showing the quantity and value of glass products for the United States, as returned at the censuses of 1900 and 1905, with the percentages of increase.

TABLE 7.—Glass manufacture—quantity and value of products, with per cent of increase: 1905 and 1900.

	1905	1900	Per cent of increase.
Products, aggregate value.....	\$79,607,998	\$56,539,712	40.8
Building glass:			
Total value.....	\$21,697,861	\$17,096,234	26.9
Window glass—			
50-foot boxes.....	4,852,315	4,341,282	11.8
Value.....	\$11,610,851	\$10,879,355	6.7
Obscured glass—			
100-foot boxes.....	70,774	.....	.....
Value.....	\$376,030	.....	.....
Plate glass—			
Total cast, square feet.....	34,804,986	134,758,994	0.1
Rough made for sale—			
Square feet.....	17,784	628,684	97.2
Value.....	\$3,529	\$75,887	95.3
Polished—			
Square feet.....	27,293,138	16,883,578	61.7
Value.....	\$7,978,253	\$5,158,598	54.7
Cathedral—			
Square feet.....	6,615,093	8,546,361	25.2
Value.....	\$293,623	\$567,252	48.2
Skylight—			
Square feet.....	15,255,541	3,679,694	314.6
Value.....	\$678,391	\$165,086	310.9
All other building glass, value ¹	\$757,184	\$250,056	202.8
Pressed and blown glass:			
Total value.....	\$21,956,158	\$17,076,125	28.6
Tableware—			
100 pieces.....	1,283,974	655,141	96.0
Value.....	\$4,897,537	\$2,617,784	87.1
Jellies, tumblers, and goblets—			
Dozens.....	7,346,214	8,544,050	14.0
Value.....	\$1,639,167	\$2,007,386	18.3
Lamps—			
Dozens.....	487,017	807,765	39.7
Value.....	\$1,247,628	\$1,498,675	16.8
Chimneys—			
Dozens.....	7,039,756	6,901,192	2.0
Value.....	\$3,061,334	\$2,719,583	12.6
Lantern globes—			
Dozens.....	1,765,247	1,044,816	69.0
Value.....	\$852,823	\$497,021	71.6
Globes and other electrical goods ² —			
Dozens.....	1,901,415	.....	.....
Value.....	\$1,106,317	.....	.....
Shades, globes, and other gas goods ² —			
Dozens.....	878,244	2,673,854	67.2
Value.....	\$1,949,069	\$2,497,885	22.0
Blown tumblers, stemware, and bar goods—			
Dozens.....	6,282,606	6,127,367	2.5
Value.....	\$2,928,198	\$1,598,652	83.2
Opal ware—			
Dozens.....	1,091,208	3,750,443	70.9
Value.....	\$870,221	\$1,581,731	45.0
Cut glass—			
Dozens.....	83,736	134,726	37.8
Value.....	\$987,556	\$672,463	46.9
All other pressed and blown glass, value.....	\$2,416,308	\$1,384,945	74.5
Bottles and jars:			
Total value.....	\$33,631,063	\$21,676,791	55.1
Prescription vials and druggists' wares—			
Gross.....	3,202,586	2,423,932	32.1
Value.....	\$6,638,508	\$4,665,697	42.3
Beers, sodas, and minerals—			
Gross.....	2,351,852	1,351,118	74.1
Value.....	\$7,927,287	\$5,075,068	56.2
Liquors and flasks—			
Gross.....	2,157,801	985,374	119.0
Value.....	\$5,555,815	\$2,403,447	131.2
Milk jars—			
Gross.....	253,651	146,142	73.6
Value.....	\$1,160,743	\$729,008	59.2
Fruit jars—			
Gross.....	1,061,829	789,298	34.5
Value.....	\$3,436,047	\$2,935,036	17.1
Battery jars and other electrical goods—			
Gross.....	19,974	.....	.....
Value.....	\$105,632	.....	.....
Patent and proprietary—			
Gross.....	1,657,372	1,296,131	27.9
Value.....	\$3,709,510	\$2,602,976	42.5
Packers and preservers—			
Gross.....	1,237,065	784,588	57.7
Value.....	\$2,989,557	\$2,119,221	41.1
Demijohns and carboys—			
Dozens.....	64,450	83,243	22.6
Value.....	\$247,856	\$206,061	20.3
All other bottles and jars, value.....	\$1,860,108	\$940,277	97.8
All other products, value.....	\$2,322,916	\$690,562	236.4

¹Includes the number of square feet of cathedral, skylight, and wire glass cast in 1900, but not included in 1905.

²Decrease.

³In order to avoid disclosing the operations of individual establishments, the value of wire glass has been included in the value of "all other building glass."

⁴Electrical and gas goods were not reported separately in 1900.

In order to avoid disclosing the value of products of individual establishments the statistics of production by states have been omitted from Table 7.

The aggregate value of all products of establishments engaged in the manufacture of glass was \$79,607,998 in 1905, and \$56,539,712 in 1900, an increase of 40.8 per cent. The value of products of establishments engaged in the manufacture of building glass in 1905 was \$21,697,861, or 27.3 per cent of the value of the total output of all establishments reporting in that year. The value of products of establishments producing pressed and blown glass was \$21,956,158, or 27.6 per cent of the total; of establishments manufacturing bottles and jars, \$33,631,063, or 42.2 per cent of the total.

In addition to the establishments engaged primarily in the manufacture of glass, two others reported it as a by-product, the value of which was \$9,663. This amount is credited not to the glass industry, but to the industries in which the two establishments were primarily engaged.

During the census year 1905 the number of establishments engaged in the manufacture of window glass was 103, as compared with 100 in 1900. There were 4,852,315 boxes of window glass, valued at \$11,610,851, produced in 1905, as compared with 4,341,282 boxes, worth \$10,879,355, manufactured in 1900. The increase in number of boxes was 11.8 per cent, and in value, 6.7 per cent. The average value in 1900 was \$2.51 per box, and in 1905, \$2.39 per box.

The production of polished plate glass was 27,293,138 square feet, valued at \$7,978,253, in 1905, as compared with 16,883,578 square feet, valued at \$5,158,598, in 1900. The increase between 1900 and 1905 was 61.6 per cent in the quantity of polished plate produced, and 54.6 per cent in the value. The price per square foot in 1905 was 29 cents, as compared with 31 cents in 1900. In addition to the polished plate made, 17,784 square feet of rough plate, valued at \$3,529, was sold in 1905, as compared with 628,684 square feet, valued at \$75,887, in 1900. The decrease in quantity was 97.2 per cent, and in value 95.3 per cent. Rough plate is used for skylights, but it is being displaced by wire glass. The average value per square foot in 1905 was 20 cents, and in 1900, 12 cents. The increased demand for polished plate glass is general. In a marked degree it is taking the place of common glass in large buildings, in which plate glass was formerly used to only a limited extent. The use of plate glass in residences is also rapidly increasing.

In 1900 the value of pressed and blown glass was \$17,076,125, and in 1905, \$21,956,158, an increase of 28.6 per cent. A comparison of the production of pressed and blown glass establishments in 1900 and 1905 reveals many changes, all of which are the natural results of progression. The development of the manufacture of tableware in the United States has

been rapid. Most of the tableware produced during the census year was of the thick, heavy flint variety, in imitation of cut glass. The brilliancy, design, and workmanship of this glass has reached such a point that its resemblance to cut glass is remarkable. In 1905, 1,283,974 hundred pieces of tableware, valued at \$4,897,537, were produced. In 1900 the production was 655,141 hundred pieces, valued at \$2,617,784. The increase was 96 per cent in quantity produced and 87.1 per cent in value. The value was \$3.81 per hundred pieces in 1905 and \$4 in 1900.

Jellies, tumblers, and goblets produced in 1905, as compared with those produced in 1900, show a decrease of 14 per cent in quantity and 18.3 per cent in value. This decrease is attributed to the increased use of fruit jars. The average value was 23 cents per dozen in 1900 and 22 cents in 1905.

The use of oil lamps in the United States is decreasing, due to the wider use of gas and electricity. The cost of installing a gas or an electric plant has been so reduced that many small towns and cities are now equipped with one or both of these systems and have discarded the oil lamp. In 1905 the number of lamps produced was 487,017 dozens, valued at \$1,247,628, and in 1900 the number was 807,765 dozens, valued at \$1,498,675, a decrease of 39.7 per cent in quantity and 16.8 per cent in value. The fact that the per cent of decrease in value is considerably less than that in number is illustrated by the increase in average price per dozen, which was \$1.86 in 1900 and \$2.56 in 1905. This increase is caused by the increase in number of fancy lamps produced. Notwithstanding the decrease in number of lamps produced, the number of chimneys manufactured increased 2 per cent in quantity and 12.6 per cent in value. This increase is probably ac-

counted for by the number exported, as lamp chimneys form a considerable portion of the glass exports from the United States. The lantern globes produced in 1905, as compared with those reported in 1900, show an increase of 69 per cent in number and 71.6 per cent in value. The value in each year was 48 cents per dozen.

In 1900 the number and value of globes and other electrical goods and the number and value of shades, globes, and other gas goods, were not reported separately, as in 1905. The statistics for these two items combined show 2,779,659 dozens, valued at \$3,055,386 in 1905, as compared with 2,673,854 dozens, valued at \$2,497,885 in 1900, an increase of 4 per cent in quantity and 22.3 per cent in value. Opal ware produced in 1905, as compared with that reported in 1900, decreased 70.9 per cent in quantity and 45 per cent in value. This decrease was caused by the increased use of cheap china ware. The decrease in quantity of cut glass manufactured is due to the fact that a number of establishments which did a small amount of cutting on drinking glasses, shades, globes, etc., in 1900, did not report any cut glass in 1905. These facts partially explain the increase in the average value, which was \$4.99 per dozen in 1900 and \$11.79 per dozen in 1905.

The growth of the bottle and jar industry since 1900 has been vigorous, the increase of 55.1 per cent in total value of products being an evidence of the prosperity enjoyed by bottle and jar establishments. The value per gross of nearly all items shows a decrease, but this is readily accounted for by the use of the blowing machine, which has materially lessened the cost of production.

Imports and exports.—Table 8 presents the value of glass imported and exported, 1869 to 1905.

TABLE 8.—VALUE OF GLASS IMPORTED AND OF DOMESTIC GLASS EXPORTED: 1869 TO 1905.¹

YEAR.	IMPORTS.									EXPORTS.			
	Total value.	Bottles, vials, carboys, etc. ²	Cylinder and common window glass, unpolished.	Cylinder and crown glass, polished.		Plate glass.			Glass plates or disks for optical instruments. ⁴	All other.	Total value.	Window glass. ⁵	All other.
				Unsilvered.	Silvered. ³	Fluted, rolled, or rough.	Cast, polished, unsilvered.	Cast, polished, silvered.					
1905.....	\$5,948,839	\$671,699	\$627,618	\$289,708	\$2,393	\$28,657	\$1,184,088	\$4,096	\$177,457	\$2,963,123	\$2,252,799	\$65,869	\$2,186,930
1904.....	6,583,168	540,460	1,381,104	322,492	7,004	28,140	945,048	6,631	215,583	3,136,706	1,978,481	71,498	1,906,983
1903.....	7,255,879	493,712	1,762,767	525,380	1,532	57,990	1,432,297	6,991	217,612	2,757,598	2,150,699	59,519	2,091,180
1902.....	6,205,052	458,454	1,827,498	356,518	641	12,581	999,934	6,528	191,089	2,351,809	1,960,106	51,952	1,908,154
1901.....	5,010,675	505,253	908,044	456,947	488	5,931	787,450	18,819	161,512	2,166,201	2,126,309	55,286	2,071,023
1900.....	5,037,931	464,483	1,555,924	539,082	286	7,915	226,295	12,413	125,449	2,106,084	1,936,119	36,218	1,899,901
1899.....	4,303,610	371,394	1,275,184	521,957	622	9,528	233,190	419	119,832	1,771,534	1,503,651	32,690	1,470,961
1898.....	3,782,617	338,861	953,116	569,380	66,768	9,880	161,637	562	107,572	1,574,841	1,211,084	23,480	1,187,604
1897.....	5,603,808	600,308	1,181,096	301,412	772,296	18,245	285,485	21,870	94,242	2,328,314	1,208,187	13,369	1,194,818
1896.....	7,528,420	382,101	1,067,999	190,704	1,158,321	23,486	773,250	34,119	92,628	3,805,812	1,062,225	14,994	1,047,231
1895.....	6,627,473	531,904	835,730	61,212	782,778	23,990	684,131	16,740	85,794	3,605,194	946,381	11,140	935,241
1894.....	5,288,697	506,183	1,067,787	22,314	786,004	38,121	449,086	75,106	71,881	2,272,215	922,072	19,311	902,761
1893.....	8,082,639	739,037	1,496,326	91,559	1,679,185	70,493	829,596	154,404	60,898	2,961,141	973,827	10,229	963,598
1892.....	8,828,952	827,761	1,674,679	158,464	1,549,968	56,162	887,626	119,201	69,988	3,485,103	942,302	10,238	932,064
1891.....	8,463,935	926,010	1,475,338	91,248	1,912,391	78,030	1,351,808	183,015	99,623	2,486,472	868,374	11,244	857,130
1890.....	7,411,343	912,704	1,461,736	74,546	1,529,401	84,715	931,323	249,819	58,830	2,108,269	882,677	8,910	873,767
1889.....	7,724,662	825,411	1,444,982	91,105	756,577	130,172	983,316	1,243,455	10,741	2,238,903	894,200	16,864	877,336
1888.....	7,872,263	815,564	1,397,898	95,147	59,208	131,224	1,258,736	1,801,514	12,538	2,295,434	881,628	10,733	870,895
1887.....	7,336,771	739,240	1,400,159	85,500	1,262	90,899	1,191,134	1,647,154	16,876	2,144,547	883,504	15,955	867,549
1886.....	6,358,085	609,435	1,360,955	27,807	.....	107,057	907,267	1,528,379	19,988	1,797,197	773,878	8,246	765,632
1885.....	6,256,194	590,170	1,630,844	18,287	189	118,693	900,461	1,192,147	.....	1,805,413	783,915	10,055	773,860
1884.....	7,552,498	521,787	2,431,068	28,695	.....	101,777	959,817	1,387,728	.....	2,121,626	839,756	18,665	821,091
1883.....	7,762,543	.....	1,736,700	62,630	.....	62,898	1,145,709	1,226,432	.....	3,528,174	998,857	.....	998,857
1882.....	6,134,371	.....	1,387,257	27,117	.....	56,407	1,183,482	943,706	.....	3,036,402	864,235	.....	864,235
1881.....	5,378,023	.....	1,414,709	57,754	.....	32,422	979,452	833,385	.....	2,560,303	756,022	.....	756,022
1880.....	5,221,511	.....	1,439,447	15,601	.....	22,799	835,496	911,144	.....	1,997,024	749,866	.....	749,866
1879.....	3,222,479	.....	595,070	11,110	.....	6,527	699,459	575,549	.....	1,334,764	768,644	.....	768,644
1878.....	3,345,149	.....	812,612	7,178	.....	5,685	885,823	572,066	.....	1,061,795	869,682	.....	869,682
1877.....	3,936,786	.....	1,006,456	8,482	.....	14,405	1,263,864	552,899	.....	1,090,680	658,061	.....	658,061
1876.....	4,806,948	.....	1,292,020	5,448	.....	29,069	1,358,881	773,423	.....	1,348,107	628,121	.....	628,121
1875.....	5,803,115	.....	1,656,040	21,166	.....	47,265	1,620,032	887,847	.....	1,572,765	691,310	.....	691,310
1874.....	6,257,964	.....	1,881,368	14,933	.....	34,237	1,655,909	961,512	.....	1,710,005	631,827	.....	631,827
1873.....	7,420,044	.....	2,759,728	21,217	.....	34,180	1,550,857	823,076	.....	2,230,986	627,562	.....	627,562
1872.....	5,834,712	.....	2,103,827	23,931	.....	17,697	1,063,810	803,487	.....	1,821,960	547,112	.....	547,112
1871.....	4,269,620	.....	1,447,292	16,738	.....	26,191	919,435	651,487	.....	1,208,477	466,447	.....	466,447
1870.....	4,157,634	.....	1,459,067	18,501	.....	24,684	820,252	615,347	.....	1,219,783	530,654	.....	530,654
1869.....	3,895,739	.....	1,466,138	25,885	.....	22,173	717,952	625,338	.....	1,038,253	580,718	.....	580,718

¹ "Commerce and Navigation of the United States," Bureau of Statistics, Department of Commerce and Labor.² Included in "all other" glass and glassware imported previous to 1884.³ Included in "unsilvered" cylinder and crown glass, polished, previous to 1885.⁴ Not reported separately previous to 1886.⁵ Included in "all other" glass and glassware exported previous to 1884.

The fluctuation in value of glass imported from 1869 to 1905 is shown in Table 8. The value of imports rose steadily from \$3,895,739 in 1869 to \$7,420,044 in 1873, after which it declined until 1879, when it was \$3,222,479, the lowest amount reported during the thirty-seven years covered by the statistics. From that date the general tendency, not always consistent, was upward, and lasted until 1892, when the value of imports, \$8,828,952, was the highest reached during the period. After 1892 there was an irregular downward movement which ended with \$3,782,617 in 1898. The next high point was reached in 1903 with imports valued at \$7,255,879. In 1905 the value was \$5,948,839.

The most noticeable changes shown by Table 8 are in the value of polished, cylinder, crown, and plate glass imported. The first marked decline in the imports of silvered polished plate glass, known as French mirror plate, was caused by the large increase in imports of the cheaper silvered polished cylinder and crown glass, known as German looking-glass. The German article is inferior to the French plate and is imported in small sizes, while the French plate is im-

ported in large sizes. In 1888 the value of French silvered plate imported was \$1,801,514, but in the next three years it had fallen to \$183,015. During the same period the imports of German looking-glass increased from \$59,208 to \$1,912,391. From 1892 to 1897 the value of imports of the German looking-glass fluctuated, but in 1898 the decline was remarkable, and practically ended the importation of silvered glass into the United States. In 1891 the total value of polished cylinder, crown, and plate glass, silvered and unsilvered, imported was \$3,538,462, and in 1900, \$778,076. This decrease was due largely to low prices during that period, caused by overproduction. Good industrial conditions in the United States were responsible for the increase in importations, 1900 to 1905.

Glass interests give various reasons for the importations of polished cylinder and plate glass. The principal reason, and the one which would in a measure account for the low prices of imported glass, which are, it is asserted, from 30 to 50 per cent lower for the United States than for Europe, is that the prevailing wages in the industry in Europe are so low that it is

necessary to give the glassworkers continuous employment, and in order to do this manufacturers sell their surplus product, produced by continued operation, at shop cost. This is a practice often resorted to by manufacturers in different countries in order to dispose of a surplus stock, as the fixed expenses, such as salaries, taxes, etc., must necessarily be the same, regardless of the amount of time a factory is in operation during the year. This practice on the part of the European manufacturers was the cause for the assertion that the United States is a "dumping ground" for European glass. It is asserted that a greater part of the polished cylinder and plate glass imported is used for mirrors, that two-thirds of it is in sizes under 10 square feet, that 70 per cent of this amount is under 5 square feet, and that while a considerable amount of small sized plate glass is annually produced in the United States, it is incidental, being caused by defects in casting and by breakage, etc., and is sold at a loss.

Notwithstanding all these claims made by American glassmakers, European glassmakers have always considered the United States an excellent market, and the value of glass imported from year to year, as shown by Table 8, is proof of this. The condition of the glass industry in Europe during the past decade was such that foreign glassmakers could not afford to export glass to the United States at a loss. European glass manufacturers are well aware of the fact that the glass industry in all its branches is firmly established in the United States and that the resources of the country are such that its possibilities of future development are far greater than those of Europe. However, European glass manufacturers esteem American trade so highly that the manufacturers of that country have met and discussed ways and means whereby they can hold their American trade. The following is from the German "Glasshuetten," of Dresden, under date of October 19, 1903:

For several years past there has existed a bitter struggle between the Belgian glass industry and the gigantic American plate glass trust, which controls the largest factories there, and the present unsatisfactory condition of the Belgian glass production is, in the main, directly attributable to American competition. While heretofore the competition has centered in the manufacture of window glass, the pressure has now been extended so as to include the manufacture of plate glass. Heretofore the American plate glass manufacturers have maintained high prices, and therefore presented comparatively little competition to the Belgian industry in its export trade; but lately the American factory ring has decided to reduce prices materially and to engage in a life and death competitive struggle with Belgium. As Belgian manufacturers have heretofore exported to America about 3,000,000 francs worth of plate glass and mirrors annually, an amount which will now be considerably reduced, owing to the low prices made by the Americans, the seriousness of existing conditions is apparent. The industry in Belgium has been unprofitable for years past, and the procedure of the American manufacturers can not fail to inflict a heavy blow to an already prostrated industry, evidence of which event is already presented in the panic like despondency of the plate glass manufacturers who attended the recent meeting at Brussels.

In addition the "Glasshuetten" stated in its issue of October 21 of the same year that the meeting of the Belgian glass manufacturers held in Brussels discussed ways and means looking to the formation of a trust embracing all glass manufacturers, and that the conclusion was reached that such an industrial combination had become necessary in order to purchase the required raw materials at a lower cost, to establish and maintain a standard of prices, and, most important of all, to hold their own in the world's market against the growing competition of American manufacturers. The meeting appointed a committee for the purpose of devising and submitting to a future meeting a working plan on the lines indicated by the sense of the meeting. As the plate glass manufacturers of the United States have never competed with European glass manufacturers in foreign markets, the above must refer more particularly to their trade in the United States.

In reviewing the situation it would appear that the importation is due more to the high prices maintained by the American manufacturers because of the cost of production than to the desire of European manufacturers, regardless of cost of production, to "dump" in the United States their products, which are and have always been well made and of good quality. The attitude of the European manufacturers when plate glass prices in this country were reduced is evidence that there must be a fair profit in glass exported to the United States, notwithstanding the claim of low prices.

The annual value of common window glass imported since 1869 shows considerable variation. Practically the same conditions that govern the imports of polished cylinder and plate glass govern the imports of window glass. The increase in imports in 1902 and 1903 was caused by the good industrial conditions in the United States during those years. The decrease in 1904 and 1905 was caused by labor troubles in Belgium. The value of imports in 1902 was the largest since 1884, and, in 1905, the lowest since 1879.

The annual value of imports of fluted, rolled, or rough plate decreased almost steadily from 1888, when the value of imports was \$131,224, until 1901, when the value was \$5,931. In 1903 the value increased to \$57,990, but in 1905 it had fallen to \$28,657.

The value of bottles, vials, carboys, etc., imported, changes every few years, governed principally by the importations of bottled goods, as the importation of empty bottles is very limited.

Imports of glass for optical purposes, on which there is no duty, increased in value from \$125,449 in 1900 to \$177,457 in 1905, or 41.5 per cent. Very little has been done by the glass manufacturers of this country to secure this trade, as the possible returns in the industry are small when compared with the difficulties of manufacture, without taking into consideration the competition of the long established foreign factories.

Glass imported under the head of "all other" consisted chiefly of chemical ware, cheap Bohemian glassware, both colored and decorated, and glass balls such as are used in Christmas decorations. A glassworker, formerly of Germany, stated that much of the cheap glassware imported into the United States is made in the farming districts of Germany. The glassworker is often assisted by his children and sometimes by his wife. These assistants receive little or no compensation. The products of these factories are collected and sold in lots at a very low figure. Chemical ware has long been supplied by England and France, but these importations are decreasing to some extent because of the manufacture of this class of ware in the United States.

In addition to the value of glass imported, Table 8 shows the value of glass exported. From 1869 to 1905 the value of glass exported has increased \$1,672,081. No data regarding the export of glass previous to 1826 are obtainable, but in that year the value of glass exports was \$44,557, and in 1905, \$2,252,799, an increase of \$2,208,242 in seventy-nine years. The export of \$44,557 worth of glass in 1826 was a great achievement for the early glass manufacturers, inasmuch as the glass industry in the United States was not firmly established until about 1810. The early exports consisted chiefly of bottles, tumblers, and decanters. Window glass was not exported until about 1884 and the

growth since that time has been slow. From 1826 to 1896, a period of seventy years, the exports of glass reached the million dollar mark but once, and that was in 1865 when they were valued at \$1,268,533. In 1896, after a lapse of thirty-one years, exports again reached the million dollar mark, and five years later reached the two million mark. Since 1900 exports of glass have increased from \$1,936,119 to \$2,252,799 in 1905, or 16.4 per cent. Exports of "all other" glass have almost steadily increased since 1869, at which time the value of glass exports was \$580,718; in 1905 the amount was \$2,186,930, an increase of \$1,606,212 since 1869. The increase from 1900 to 1905 was \$287,029, or 15.1 per cent.

Most of the glass exported from the United States consisted of pressed and blown ware, such as tableware, lamp chimneys, tumblers, bowls, etc. Since American manufacturers have established show and sales rooms abroad, and the excellent quality and workmanship of our pressed and blown glass have become known, it is safe to assume that our export trade in this particular line is safe for some time to come.

The detailed statistics for the industry are shown in Table 9. Table 10 presents the condensed statistics of building glass and Table 11 the condensed statistics of pressed and blown glass and bottles and jars.

TABLE 9.—GLASS—DETAILED

	United States.	California.	Illinois.	Indiana.	Kansas.
1 Number of establishments.....	399	4	13	96	9
2 Capital:					
3 Total.....	\$89,389,151	\$1,244,919	\$3,576,172	\$13,884,485	\$590,906
4 Land.....	\$6,566,467	\$191,560	\$160,505	\$553,605	\$37,500
5 Buildings.....	\$24,324,811	\$162,254	\$972,612	\$3,973,781	\$213,671
6 Machinery, tools, and implements.....	\$21,230,876	\$210,476	\$379,996	\$3,843,755	\$62,149
7 Cash and sundries.....	\$37,266,997	\$680,629	\$2,063,059	\$5,513,344	\$277,586
8 Proprietors and firm members.....	96		8	18	
9 Salaried officials, clerks, etc.:					
10 Total number.....	3,040	52	119	432	27
11 Total salaries.....	\$3,940,293	\$65,382	\$151,330	\$548,999	\$28,610
12 Officers of corporations—					
13 Number.....	543	6	16	112	9
14 Salaries.....	\$1,340,761	\$16,700	\$46,800	\$233,467	\$10,700
15 General superintendents, managers, clerks, etc.—					
16 Total number.....	2,497	46	103	320	18
17 Total salaries.....	\$2,599,532	\$48,682	\$104,530	\$315,532	\$17,910
18 Men—					
19 Number.....	2,107	35	80	287	16
20 Salaries.....	\$2,408,172	\$42,324	\$90,680	\$299,737	\$16,930
21 Women—					
22 Number.....	390	11	23	33	2
23 Salaries.....	\$191,360	\$6,358	\$13,850	\$15,795	\$980
24 Wage-earners, including pieceworkers, and total wages:					
25 Greatest number employed at any one time during the year.....	87,586	1,153	6,766	17,029	1,167
26 Least number employed at any one time during the year.....	55,642	844	3,270	10,258	679
27 Average number.....	63,969	889	4,768	12,020	718
28 Total wages.....	\$37,288,148	\$498,225	\$3,011,632	\$6,638,130	\$446,771
29 Men 16 years and over—					
30 Average number.....	54,079	788	4,258	10,662	620
31 Wages.....	\$35,005,647	\$453,391	\$2,912,778	\$6,316,351	\$424,201
32 Women 16 years and over—					
33 Average number.....	3,455	77	127	487	44
34 Wages.....	\$868,808	\$37,684	\$26,853	\$101,018	\$9,758
35 Children under 16 years—					
36 Average number.....	6,435	24	383	871	54
37 Wages.....	\$1,413,693	\$7,150	\$72,001	\$220,761	\$12,812
38 Average number of wage-earners, including pieceworkers, employed during each month:					
39 Men 16 years and over—					
40 January.....	60,455	924	4,359	12,269	694
41 February.....	61,941	937	5,479	12,347	825
42 March.....	62,843	932	5,443	12,584	818
43 April.....	63,108	926	5,392	12,182	794
44 May.....	62,130	852	5,307	11,857	784
45 June.....	56,377	823	4,745	10,832	788
46 July.....	24,336	252	1,504	4,215	98
47 August.....	20,768	191	1,489	4,817	158
48 September.....	50,516	856	4,462	10,892	550
49 October.....	58,780	902	4,840	11,510	560
50 November.....	60,452	904	3,782	12,092	698
51 December.....	61,242	957	4,294	12,347	673
52 Women 16 years and over—					
53 January.....	3,614	88	150	549	42
54 February.....	3,595	89	150	548	42
55 March.....	3,743	89	149	558	42
56 April.....	3,738	74	150	532	46
57 May.....	3,737	79	147	524	46
58 June.....	3,541	66	112	511	46
59 July.....	1,764	60	5	150	1
60 August.....	2,044	52	8	189	16
61 September.....	3,701	68	158	608	59
62 October.....	4,012	77	166	567	61
63 November.....	4,057	86	165	564	63
64 December.....	3,914	96	164	544	64
65 Children under 16 years—					
66 January.....	7,089	5	386	1,035	69
67 February.....	7,372	32	506	1,052	74
68 March.....	7,418	32	507	1,002	73
69 April.....	7,470	32	490	973	45
70 May.....	7,446	32	473	966	45
71 June.....	7,067	31	388	920	45
72 July.....	2,146	28	148	210	
73 August.....	2,563	28	146	269	
74 September.....	5,373	31	366	1,016	40
75 October.....	7,327	19	448	969	85
76 November.....	7,453	3	349	1,017	86
77 December.....	7,496	15	339	1,023	86
78 Miscellaneous expenses:					
79 Total.....	\$5,911,507	\$64,242	\$379,907	\$710,654	\$41,892
80 Rent of works.....	\$36,393	\$3,000	\$3,612	\$2,432	
81 Taxes.....	\$320,728	\$1,752	\$14,238	\$62,019	\$2,314
82 Rent of offices, interest, insurance, and all other sundry expenses not hitherto included.	\$5,497,538	\$59,490	\$362,057	\$646,128	\$39,578
83 Contract work.....	\$56,848			\$75	
84 Materials used:					
85 Total cost.....	\$26,145,522	\$274,071	\$1,400,237	\$5,558,839	\$355,093
86 Glass sand—					
87 Tons.....	769,792	9,975	62,156	193,600	10,518
88 Cost.....	\$1,547,147	\$32,550	\$65,646	\$316,265	\$25,021
89 Soda ash (carbonate of soda)—					
90 Tons.....	215,462	3,688	21,691	55,249	2,548
91 Cost.....	\$1,068,804	\$85,597	\$369,809	\$1,039,241	\$58,288
92 Salt cake (sulphate of soda)—					
93 Tons.....	53,905	212	559	9,963	1,476
94 Cost.....	\$802,611	\$2,332	\$7,288	\$157,341	\$24,490
95 Nitrate of soda—					
96 Tons.....	11,915	196	900	2,156	108
97 Cost.....	\$511,854	\$8,242	\$38,087	\$98,861	\$6,855
98 Limestones—					
99 Tons.....	115,655	1,517	8,013	27,120	1,319
100 Cost.....	\$274,209	\$8,893	\$13,745	\$54,055	\$5,138
101 Lime—					
102 Hundredweight.....	933,074	86	79,419	170,433	18,366
103 Cost.....	\$241,755	\$32	\$20,545	\$50,492	\$7,247

SUMMARY, BY STATES: 1905.

Maryland.	Massachusetts.	Missouri.	New Jersey.	New York.	Ohio.	Pennsylvania.	Virginia.	West Virginia.	All other states. ¹	
6	4	6	22	28	37	122	4	11	9	1
\$523,199	\$610,763	\$3,219,034	\$6,304,455	\$3,455,441	\$9,254,195	\$40,612,180	\$402,459	\$4,299,860	\$1,411,083	2
\$65,705	\$46,200	\$140,800	\$408,530	\$326,081	\$545,455	\$3,280,074	\$14,000	\$255,490	\$240,962	3
\$198,958	\$159,600	\$735,327	\$1,432,067	\$759,257	\$2,906,244	\$11,638,343	\$60,000	\$1,087,021	\$255,676	4
\$77,519	\$46,400	\$1,172,245	\$637,839	\$570,947	\$2,108,579	\$10,738,412	\$189,584	\$786,157	\$346,518	5
\$180,717	\$358,563	\$870,662	\$3,946,019	\$1,999,156	\$3,543,917	\$14,955,351	\$138,875	\$2,171,192	\$567,927	6
5	2		5	9	10	32	2	5		7
28	45	111	369	142	309	1,167	11	189	39	8
\$35,328	\$64,988	\$158,874	\$358,988	\$202,443	\$444,268	\$1,597,113	\$17,868	\$208,855	\$57,247	9
5	7	18	42	34	66	169	3	49	7	10
\$14,500	\$21,944	\$51,200	\$110,290	\$84,440	\$179,750	\$469,951	\$9,000	\$76,772	\$15,247	11
23	38	93	327	108	243	998	8	140	32	12
\$20,828	\$43,044	\$107,674	\$248,698	\$118,003	\$264,518	\$1,127,162	\$8,868	\$132,083	\$42,000	13
21	27	88	249	111	191	879	6	107	27	14
\$20,064	\$38,186	\$104,890	\$224,796	\$110,721	\$237,481	\$1,055,374	\$7,882	\$119,097	\$40,010	15
2	11	5	78	14	52	119	2	33	5	16
\$764	\$4,558	\$2,784	\$23,902	\$7,282	\$27,037	\$71,788	\$986	\$12,986	\$1,990	17
995	998	1,886	7,358	4,142	11,130	27,843	593	5,109	1,417	18
660	872	1,107	5,570	2,987	5,318	19,302	518	3,265	992	19
649	855	1,561	5,507	3,153	7,844	20,794	472	3,673	1,086	20
\$354,235	\$441,541	\$938,454	\$3,145,384	\$1,824,576	\$4,511,605	\$12,518,440	\$263,637	\$2,054,181	\$641,317	21
502	729	1,469	4,815	2,800	6,321	17,074	404	2,777	860	22
\$324,328	\$409,741	\$917,620	\$2,996,759	\$1,715,544	\$4,172,470	\$11,658,488	\$248,128	\$1,852,741	\$603,107	23
34	96	8	124	103	787	1,107		445	16	24
\$9,124	\$24,500	\$1,800	\$29,603	\$25,635	\$186,605	\$305,140		\$106,695	\$4,393	25
113	30	54	568	250	736	2,613	68	451	190	26
\$20,783	\$7,300	\$19,034	\$119,022	\$83,397	\$152,530	\$554,812	\$15,529	\$94,745	\$33,817	27
476	104	1,679	4,675	3,342	7,328	19,326	471	3,224	994	28
474	720	1,657	4,715	3,413	7,603	19,113	465	3,203	990	29
479	714	1,643	4,927	3,460	7,679	19,578	484	3,166	936	30
476	739	1,472	5,854	3,360	7,521	19,742	491	3,105	1,024	31
508	739	1,563	5,795	3,334	7,397	19,462	496	3,039	997	32
532	717	1,567	4,803	3,029	7,194	17,302	463	2,676	906	33
185	674	928	2,437	1,209	2,115	8,946	29	1,430	314	34
219	674	1,127	2,277	1,225	2,818	10,178	33	1,228	334	35
521	680	1,212	4,677	2,398	5,036	15,728	477	2,274	753	36
731	799	1,585	5,573	2,823	6,920	17,987	472	3,071	1,007	37
740	807	1,485	5,926	2,997	7,188	18,863	476	3,472	1,022	38
653	791	1,710	6,091	3,010	7,053	18,663	491	3,436	1,043	39
15	88	0	120	118	841	1,104		468	22	40
17	94	0	76	119	847	1,104		480	20	41
13	103	0	130	127	869	1,163		470	21	42
13	102	9	133	129	836	1,205		488	21	43
22	97	7	141	124	830	1,209		495	16	44
29	99	7	141	117	798	1,132		467	16	45
18	88		80	61	409	603		288	1	46
10	93		83	60	518	761		225	1	47
70	88		132	90	810	1,223		418	9	48
80	92	10	146	95	890	1,254		533	21	49
71	103	10	150	100	910	1,290		514	22	50
	105	10	156	96	886	1,206		494	22	51
119	31	97	552	301	805	2,850	51	483	245	52
116	28	97	579	306	860	2,638	80	459	245	53
117	27	99	573	317	880	2,972	80	489	250	54
119	24	96	676	316	900	2,959	86	501	253	55
137	29	93	690	310	910	2,940	86	495	240	56
141	31	94	677	296	936	2,755	81	473	199	57
26	11	9	150	101	184	969		275	6	58
38	30	64	145	102	379	1,192		165	5	59
120	34	64	578	204	582	2,606	80	437	215	60
139	31	99	693	217	752	2,995	82	553	245	61
143	29	98	732	264	819	3,116	80	533	184	62
141	26	98	741	266	825	3,064	80	549	193	63
\$31,411	\$97,244	\$133,098	\$475,747	\$385,487	\$783,562	\$2,265,947	\$35,679	\$396,646	\$109,991	64
\$14	\$1,000	\$2,555	\$1,538	\$7,300	\$2,944	\$10,578		\$220	\$1,200	65
\$2,932	\$6,910	\$12,093	\$25,386	\$14,870	\$46,337	\$109,581	\$716	\$15,219	\$6,361	66
\$28,465	\$89,334	\$118,450	\$448,823	\$347,909	\$723,426	\$2,116,810	\$33,431	\$381,207	\$102,430	67
				\$15,408	\$10,855	\$28,978	\$1,532			68
\$158,732	\$316,080	\$707,871	\$1,856,239	\$1,411,973	\$2,836,521	\$9,325,184	\$169,461	\$1,259,480	\$515,741	69
3,935	1,852	23,750	53,191	45,167	81,541	219,958	12,579	37,292	14,278	70
\$8,730	\$9,329	\$26,578	\$93,246	\$95,598	\$179,157	\$558,762	\$27,406	\$88,473	\$20,386	71
1,447	600	7,653	20,825	10,498	19,683	56,742	1,924	7,927	4,989	72
\$26,608	\$12,034	\$140,404	\$410,785	\$197,252	\$372,630	\$1,072,229	\$37,845	\$152,469	\$93,613	73
		565	338	1,642	5,547	28,749		4,709	145	74
		\$7,896	\$5,227	\$21,258	\$87,946	\$422,240		\$64,464	\$2,123	75
207	51	82	816	936	1,376	3,451	186	1,217	233	76
\$9,220	\$2,323	\$3,338	\$34,277	\$40,692	\$59,146	\$140,855	\$7,977	\$51,518	\$10,483	77
228		6,524	5,057	3,429	11,704	45,974		4,270	500	78
\$1,439		\$11,725	\$21,666	\$10,484	\$21,562	\$111,514		\$10,488	\$3,500	79
4,374	9,656	6,320	116,008	41,316	104,321	265,453	17,571	42,667	57,084	80
\$552	\$2,414	\$2,000	\$27,003	\$11,489	\$21,281	\$68,545	\$4,951	\$12,125	\$13,079	81

¹Includes establishments distributed as follows: Colorado, 1; Delaware, 1; Georgia, 1; Indian Territory, 1; Michigan, 2; South Carolina, 1; Tennessee, 1; Wisconsin, 1.

TABLE 9.—GLASS—DETAILED

		United States.	California.	Illinois.	Indiana.	Kansas.
Materials used—Continued.						
Total cost—Continued.						
82	Arsenic—					
83	Pounds.....	2,676,650	34,411	91,804	548,711	29,516
	Cost.....	\$92,574	\$1,453	\$2,990	\$21,210	\$1,376
84	Carbon—					
85	Tons.....	3,750	23	95	901	63
	Cost.....	\$22,333	\$267	\$1,522	\$5,293	\$716
86	Manganese—					
87	Pounds.....	3,096,937	78,024	402,500	735,802	15,900
	Cost.....	\$101,279	\$2,832	\$10,391	\$25,232	\$766
88	Litharge (red lead)—					
89	Pounds.....	9,613,649	899	86,400	790,509	15,000
	Cost.....	\$555,130	\$18	\$4,320	\$41,106	\$1,200
90	Potash or pearlash—					
91	Pounds.....	5,446,338	8,585		435,100	6,000
	Cost.....	\$228,608	\$644		\$19,181	\$270
92	Grinding sand—					
93	Tons.....	410,856	1,026		58,678	
	Cost.....	\$332,013	\$616		\$42,213	
94	Rouge—					
95	Pounds.....	1,098,566	7,080		150,278	
	Cost.....	\$29,869	\$354		\$4,321	
96	Plaster of Paris—					
97	Tons.....	33,939	38		5,291	1
	Cost.....	\$169,988	\$133		\$25,831	\$42
98	Fire clay or pot clay—					
99	Pounds.....	42,910,286	252,000	876,400	5,896,610	300,000
	Cost.....	\$290,444	\$3,600	\$3,972	\$36,824	\$2,454
100	Pots, not including those made at works—					
101	Number.....	9,343		234	1,589	160
	Cost.....	\$432,591		\$16,027	\$67,263	\$6,516
102	Flattening stones—					
103	Number.....	410	5		111	8
	Cost.....	\$22,266	\$260		\$7,115	\$700
104	Fuel—					
105	Total cost.....	\$6,243,006	\$81,784	\$341,406	\$1,068,225	\$24,104
	Natural gas.....	\$2,777,157			\$556,967	\$23,837
106	Oil—					
107	Gallons.....	18,346,660	4,913,240	1,648,613	657,446	
	Cost.....	\$526,868	\$90,859	\$66,181	\$24,609	
108	Coal—					
109	Tons.....	1,488,476		195,719	274,785	65
110	Cost.....	\$2,748,766		\$240,665	\$477,862	\$267
111	All other fuel.....	\$190,215	\$925	\$34,560	\$8,787	
112	Rent of power and heat.....	\$42,164	\$4,718	\$1,200	\$850	
113	Lumber, casks, barrels, boxes, and nails.....	\$4,750,213	\$20,418	\$272,200	\$1,231,220	\$80,309
114	Caps, metal trimmings, and rubber supplies.....	\$1,696,145	\$7,584	\$66,525	\$712,312	\$78,984
115	Supplies, used in repairs on tanks and furnaces.....	\$741,953	\$8,289	\$64,557	\$189,500	\$12,838
116	Mill supplies.....	\$265,444	\$1,335	\$4,266	\$45,871	\$11,630
117	All other materials.....	\$2,192,528	\$2,120	\$64,163	\$200,676	\$11,149
	Freight.....	\$490,594		\$31,578	\$98,311	\$5,000
118	Products:					
119	Total value.....	\$79,607,998	\$915,446	\$5,619,740	\$14,706,929	\$958,720
120	Building glass.....	\$21,697,861	\$60,000	\$281,559	\$3,790,618	\$381,084
121	Pressed and blown glass.....	\$21,956,158		\$149,265	\$2,859,087	\$64,697
122	Bottles and jars.....	\$33,631,073	\$855,446	\$4,949,156	\$7,213,456	\$407,868
	All other products.....	\$2,322,916		\$239,760	\$843,768	\$105,071
Equipment and characteristics of works:						
123	Pot furnaces—					
124	Operated, number.....	349		8	63	5
125	Pots, number.....	4,192		104	670	30
126	Idle, number.....	49		4	7	
	Pots, number.....	617		47	79	
127	Tanks—					
128	Continuous—					
129	Operated, number.....	340	8	24	87	7
130	Rings, number.....	3,076	57	284	749	64
131	Pot capacity, number.....	7,050	122	582	1,657	148
132	Idle, number.....	26				
	Rings, number.....	191			25	
	Pot capacity, number.....	397			50	
133	Intermittent—					
134	Operated, number.....	94		4	3	
135	Ton capacity, number.....	406		20	20	
136	Pot capacity, number.....	406		20	20	
137	Idle, number.....	1				
138	Ton capacity, number.....	69		10	8	
	Pot capacity, number.....	60		10	8	
139	Building glass—					
140	Flattening ovens, number.....	325	2	5	73	7
141	Blow furnaces, number.....	165		1	43	8
142	Casting tables, number.....	160		4	26	
143	Annealing ovens, number.....	666		1	161	1
144	Bending ovens, number.....	18			5	
145	Lehrs, number.....	332	2	4	71	6
146	Grinding machines, number.....	239			41	
147	Polishing machines, number.....	307			64	
	Sand blast machines, number.....	2			1	
148	Glassware and bottles—					
149	Shops, number.....	6,687	80	608	1,391	81
150	Glory holes, number.....	1,680	26	170	348	10
151	Annealing ovens, number.....	843	15	47	30	
152	Lehrs, number.....	1,403	18	134	327	23
153	Decorating kilns, number.....	72				
154	Decorating lehrs, number.....	22				
155	Presses, hand, number.....	815		15	3	
156	Presses, mechanical, number.....	101		2	114	
157	Blowing machines, number.....	321	6	48	39	12
158	Finishing machines, number.....	115			96	10
159	Crimping machines, number.....	307			26	3
160	Mechanical polishers, number.....	32		1	118	
161	Sand blast machines, number.....	78		2	5	
162	Grinding machines for fruit jar tops, number.....	78	1	3	5	
	Clay grinding mills, number.....	58			23	
					16	1

SUMMARY, BY STATES: 1905—Continued.

Maryland.	Massachusetts.	Missouri.	New Jersey.	New York.	Ohio.	Pennsylvania.	Virginia.	West Virginia.	All other states.	
8,058	8,640	126,146	119,460	73,913	337,430	996,496	9,000	228,945	64,120	82
\$282	\$455	\$4,063	\$3,981	\$2,390	\$12,048	\$32,101	\$360	\$7,677	\$2,188	83
19		42	129	40	328	1,598	52	428	32	84
\$95		\$507	\$1,505	\$343	\$1,946	\$7,509	\$546	\$1,565	\$519	85
25,335	1,495	61,500	174,798	215,805	336,204	648,926	92,500	130,389	177,759	86
\$147	\$65	\$1,697	\$4,791	\$6,849	\$14,746	\$20,112	\$1,912	\$4,619	\$6,625	87
42,000	581,600		33,959	1,129,882	2,441,307	4,030,785		459,428	1,880	88
\$2,475	\$40,688		\$2,291	\$63,361	\$140,837	\$232,586		\$26,154	\$94	89
48,000	398,500		28,382	793,175	1,331,355	1,921,380	5,000	470,861		90
\$2,027	\$16,921		\$1,266	\$32,252	\$57,826	\$78,994	\$250	\$18,977		91
		28,741	674	410	39,016	273,428		883	8,000	92
		\$17,145	\$837	\$590	\$28,221	\$233,111		\$3,280	\$6,000	93
		83,097			116,485	717,071	5,000	4,345	15,000	94
		\$3,124			\$3,153	\$18,033	\$250	\$234	\$400	95
		2,317	9	5	3,916	20,615	168	24	1,556	96
		\$11,449	\$130	\$55	\$15,592	\$108,674	\$828	\$226	\$7,008	97
288,000	54,000	2,683,900	2,003,420	1,044,850	5,359,204	23,067,947	100,000	569,955	414,000	98
\$2,438	\$326	\$20,051	\$20,266	\$9,786	\$33,834	\$147,308	\$500	\$2,952	\$6,135	99
138	170	22	187	584	1,070	4,076		1,113		100
\$5,859	\$10,185	\$894	\$7,591	\$24,568	\$71,980	\$172,611		\$49,097		101
			17	2	21	77		169		102
			\$454	\$150	\$956	\$6,566		\$6,035		103
\$43,308	\$57,804	\$234,499	\$565,909	\$387,388	\$618,497	\$2,360,326	\$46,138	\$229,731	\$181,540	104
				\$26,373	\$264,038	\$1,682,666		\$223,276		105
45,700	762,642	124,000	5,828,714	1,311,661	440,692	2,158,440	70,090	4,960	380,462	106
\$1,455	\$30,505	\$6,366	\$164,031	\$49,064	\$13,300	\$65,759	\$6,831	\$195	\$17,713	107
16,060	5,108	128,490	108,647	100,606	153,505	419,636	12,486	4,804	68,565	108
\$41,219	\$20,531	\$227,857	\$348,221	\$297,736	\$329,589	\$574,274	\$37,387	\$6,160	\$146,998	109
\$2,924	\$6,825	\$276	\$53,657	\$14,215	\$11,570	\$37,627	\$1,920	\$100	\$16,829	110
\$141		\$600	\$3,918	\$3,000	\$25,756	\$25,756			\$1,781	111
\$29,260	\$19,632	\$50,922	\$280,839	\$217,604	\$623,406	\$1,574,820	\$29,658	\$271,607	\$48,318	112
\$6,529		\$5,293	\$110,128	\$34,840	\$110,675	\$478,935	\$2,905	\$79,298	\$2,137	113
\$769	\$2,794	\$23,561	\$39,865	\$28,794	\$80,803	\$250,413	\$1,502	\$20,741	\$17,527	114
\$3,044	\$1,000	\$12,247	\$17,986	\$6,608	\$24,643	\$110,116	\$305	\$22,706	\$13,687	115
\$9,026	\$131,180	\$85,894	\$95,000	\$191,422	\$238,462	\$1,003,301	\$1,551	\$103,712	\$54,872	116
\$4,000	\$8,673	\$43,984	\$111,176	\$24,282	\$14,174	\$89,781	\$4,577	\$31,332	\$23,726	117
\$589,589	\$1,011,373	\$1,781,026	\$6,450,195	\$4,279,766	\$9,026,208	\$27,671,693	\$549,031	\$4,598,563	\$1,449,719	118
		\$1,036,433	\$201,922	\$456,310	\$1,625,126	\$12,169,013		\$1,323,896	\$371,900	119
\$46,191	\$558,911	\$119,010	\$181,559	\$1,932,524	\$3,954,690	\$9,406,183		\$2,620,665	\$63,406	120
\$36,478	\$50,000	\$607,383	\$6,066,714	\$1,866,245	\$2,961,727	\$5,951,144	\$549,031	\$602,002	\$1,014,413	121
\$6,920	\$402,462	\$18,200		\$24,687	\$484,695	\$145,353		\$52,000		122
6	7	5	19	28	39	120		43	6	123
74	52	120	147	257	551	1,715		393	79	124
2			4	3	4	17		6	2	125
17			36	27	69	222		88	32	126
1		5	35	22	34	87	6	18	6	127
5		40	310	179	283	864	41	155	45	128
10		84	628	390	633	2,239	82	365	90	129
			11	2	2	6		1		130
			71	15	20	54		6		131
			142	30	40	123		12		132
1			11	3	12	36		19	5	133
8			60	10	33	137		90	28	134
8			60	10	33	137		90	28	135
				1	2	3		5		136
				6	9	12		24		137
				6	9	12		24		138
			6	7	22	179		22	2	139
				8	13	68		24		140
		39		2	4	56		27	2	141
		104	1	1	83	312		2		142
						13				143
		4	6	10	17	184		25	3	144
		22			25	143		1	7	145
		23			18	194		2	6	146
						1				147
79	41	34	730	366	1,115	1,595	63	434	100	148
32	19	10	319	75	139	388	16	72	36	149
3	23		220	70	86	285		27	37	150
23	16	12	108	90	166	335	11	123	17	151
	3			1	7	37		24		152
1					5	4		9		153
7	8	6		64	98	319		142	9	154
				3	21	12		11	1	155
			17	20	8	45	5	25	1	156
					46	40				157
	2			19	49	92		10	16	158
					7	6		12		159
	2				2	48		12		160
2			18	4	5	14	1	7		161
		2	7	3	6	22			1	162

TABLE 9.—GLASS—DETAILED

		United States.	California.	Illinois.	Indiana.	Kansas.
	Equipment and characteristics of work—Continued.					
163	Grinding and engraving machines, number.....	75				
164	Mechanical stokers.....	123			8	1
165	Horses and mules.....	451		45	31	
166	Wagons, carts, and drays.....	454		43	33	
	Power:					
167	Number of establishments reporting.....	387	4	13	91	8
168	Total horsepower.....	107,662	481	2,033	18,121	502
	Owned—					
	Engines—					
	Steam—					
169	Number.....	742	8	30	109	5
170	Horsepower.....	76,599	420	1,495	8,229	269
	Gas or gasoline—					
171	Number.....	297		1	98	5
172	Horsepower.....	13,947		30	6,265	183
	Water wheels—					
173	Number.....	2				
174	Horsepower.....	20				
	Water motors—					
175	Number.....	2				
176	Horsepower.....	11				
	Electric motors—					
177	Number.....	900		33	138	4
178	Horsepower.....	16,186		450	3,465	50
179	Other power, horsepower.....	316		20	150	
	Rented—					
	Electric motors—					
180	Number.....	65	8	4	1	
181	Horsepower.....	583	61	38	12	
182	Other kind, horsepower.....					
183	Furnished to other establishments, horsepower.....	1,531		60		

[illegible]

MANUFACTURES.

TABLE 10.—BUILDING GLASS, BY STATES: 1905.

	United States.	Illinois.	Indiana.	Kansas.	Missouri.	New Jersey.	New York.	Ohio.	Pennsylvania.	West Virginia.	All other states. ¹
Number of establishments.....	138	3	38	4	3	3	8	8	51	17	3
Capital.....	\$40,666,410	\$273,827	\$7,012,839	\$302,903	\$2,660,106	\$161,743	\$323,714	\$2,701,472	\$24,902,320	\$1,684,650	\$642,836
Salaried officials, clerks, etc.:											
Number.....	928	13	148	10	97	7	12	53	532	48	8
Salaries.....	\$1,156,071	\$12,980	\$149,770	\$11,660	\$133,912	\$5,530	\$12,558	\$72,134	\$685,794	\$57,573	\$14,160
Wage-earners, including pieceworkers, and total wages:											
Average number.....	14,880	230	2,961	258	1,002	146	306	1,127	7,832	699	319
Total wages.....	\$10,546,090	\$161,153	\$1,909,312	\$231,251	\$579,493	\$89,705	\$199,338	\$828,168	\$5,725,582	\$643,852	\$178,236
Men 16 years and over—											
Average number.....	14,731	230	2,927	258	994	146	299	1,127	7,736	698	316
Wages.....	\$10,505,257	\$161,153	\$1,900,501	\$231,251	\$577,289	\$89,705	\$198,148	\$828,168	\$5,698,312	\$643,394	\$177,336
Women 16 years and over—											
Average number.....	25								25		
Wages.....	\$7,446								\$7,446		
Children under 16 years—											
Average number.....	124		34		8		7		71	1	3
Wages.....	\$33,387		\$8,811		\$2,204		\$1,190		\$19,824	\$458	\$900
Miscellaneous expenses.....	\$1,210,797	\$30,207	\$212,755	\$23,092	\$55,785	\$3,614	\$22,665	\$89,238	\$696,334	\$46,840	\$23,667
Materials used:											
Total cost.....	\$8,210,702	\$72,152	\$1,406,539	\$81,885	\$524,966	\$64,746	\$176,340	\$602,920	\$4,717,404	\$375,026	\$188,724
Glass sand—											
Tons.....	247,948	2,783	40,739	3,610	15,890	1,911	4,608	22,045	135,914	16,108	3,740
Cost.....	\$499,323	\$2,715	\$84,673	\$8,826	\$16,357	\$2,306	\$5,102	\$49,495	\$285,000	\$35,565	\$8,084
Soda ash (carbonate of soda)—											
Tons.....	39,881	512	6,090	101	4,775	381	314	2,582	23,022	1,202	902
Cost.....	\$744,369	\$9,137	\$122,220	\$2,392	\$89,472	\$7,538	\$6,558	\$37,414	\$429,832	\$23,257	\$16,554
Salt cake (sulphate of soda)—											
Tons.....	51,013	430	9,737	1,351	565	322	1,630	4,220	27,960	4,451	347
Cost.....	\$759,699	\$5,590	\$154,583	\$22,495	\$7,896	\$4,975	\$21,057	\$67,910	\$412,387	\$58,474	\$4,332
Nitrate of soda—											
Tons.....	457	10	70		32		79	11	211	44	
Cost.....	\$19,107	\$323	\$3,356		\$1,270		\$3,276	\$372	\$8,758	\$1,752	
Limestone—											
Tons.....	74,787	925	11,829	1,319	5,274	294	1,378	5,991	43,721	3,851	205
Cost.....	\$167,043	\$1,447	\$23,054	\$5,138	\$9,293	\$853	\$2,469	\$10,547	\$103,159	\$10,111	\$972
Lime—											
Hundredweight.....	97,513	4,000	8,704			7,129	1,530	7,838	50,708	2,004	15,600
Cost.....	\$20,064	\$741	\$2,720			\$1,500	\$441	\$1,255	\$10,234	\$503	\$2,670
Arsenic—											
Pounds.....	1,650,472	2,040	328,274	21,290	123,546	7,298	19,180	125,162	843,212	143,930	36,540
Cost.....	\$55,223	\$82	\$12,783	\$960	\$3,965	\$248	\$644	\$4,134	\$26,328	\$4,789	\$1,290
Carbon—											
Tons.....	3,130	15	807	61	42	12	33	242	1,573	313	32
Cost.....	\$16,072	\$172	\$4,451	\$700	\$507	\$81	\$179	\$1,108	\$7,402	\$1,224	\$248
Manganese—											
Pounds.....	325,902	60,088	12,710		38,000		7,115	76,492	101,797	29,700	
Cost.....	\$7,159	\$958	\$579		\$822		\$321	\$908	\$2,827	\$744	
Grinding sand—											
Tons.....	396,755		57,894		28,741		35	38,680	263,255	150	8,000
Cost.....	\$320,718		\$39,504		\$17,145		\$25	\$26,288	\$231,576	\$180	\$6,000
Pots, not including those made at works—											
Number.....	3,443		998	140	22	19	162	10	1,513	579	
Cost.....	\$98,381		\$32,777	\$5,716	\$894	\$441	\$5,812	\$431	\$33,927	\$18,323	
Fuel.....	\$2,719,100	\$24,229	\$495,345	\$12,464	\$180,986	\$32,478	\$82,187	\$214,625	\$1,498,380	\$76,541	\$101,875
Lumber casks, barrels, boxes, etc.....	\$1,041,064	\$15,217	\$188,191	\$18,865	\$28,187	\$7,665	\$27,370	\$72,358	\$595,237	\$80,556	\$7,418
All other materials, including mill supplies, freight, and rent of power and heat.....	\$1,743,380	\$11,541	\$242,303	\$4,339	\$168,172	\$6,666	\$20,899	\$115,615	\$1,071,557	\$63,007	\$39,281
Products:											
Total value.....	\$21,557,531	\$281,559	\$3,790,618	\$381,084	\$1,036,433	\$163,922	\$447,210	\$1,575,126	\$12,125,783	\$1,323,896	\$431,900
Building glass.....	\$21,380,305	\$281,559	\$3,790,618	\$381,084	\$1,036,433	\$163,922	\$406,310	\$1,575,126	\$11,989,457	\$1,323,896	\$431,900
Other glass products.....	\$53,900						\$36,900		\$17,000		
All other products.....	\$123,326						\$4,000		\$119,326		
Furnaces:											
Pot furnaces—											
Operated, number.....	139	1	42	4	5	3	6	9	42	22	4
Pots, number.....	1,898	13	407	24	120	24	57	158	886	145	64
Idle, number.....	13		4				2		5		2
Pots, number.....	181		38				19		92		32
Tanks—											
Continuous—											
Operated, number.....	78	2	14	2	2	1	2	6	43	5	1
Rings, number.....	898	14	159	20	4	8	32	67	531	55	8
Pot capacity, number.....	2,694	42	477	60	12	24	96	201	1,593	165	24
Idle, number.....	1								1		
Rings, number.....	15								15		
Pot capacity, number.....	45								45		
Intermittent—											
Operated, number.....	10		3						7		
Tons capacity, number.....	65		20						45		
Pot capacity, number.....	65		20						45		
Idle, number.....	1		1								
Tons capacity, number.....	8		8								
Pot capacity, number.....	8		8								

¹Includes establishments distributed as follows: California, 1; Delaware, 1; Michigan, 1.

TABLE 11.—PRESSED AND BLOWN GLASS

	United States.	Illinois.	Indiana.	Kansas.
1 Number of establishments.....	261	10	58	5
2 Capital.....	\$48,722,741	\$3,302,345	\$6,871,646	\$288,003
3 Salaried officials, clerks, etc.:.....				
4 Number.....	2,112	106	284	17
5 Salaries.....	\$2,784,222	\$138,350	\$399,229	\$16,950
6 Wage-earners, including pieceworkers, and total wages:				
7 Average number.....	49,089	4,538	9,059	460
8 Total wages.....	\$26,742,058	\$2,850,479	\$4,728,818	\$215,520
9 Men 16 years and over—				
10 Average number.....	39,348	4,028	7,735	362
11 Wages.....	\$24,500,390	\$2,751,625	\$4,415,850	\$192,950
12 Women 16 years and over—				
13 Average number.....	3,430	127	487	44
14 Wages.....	\$861,362	\$26,853	\$101,018	\$9,758
15 Children under 16 years—				
16 Average number.....	6,311	383	837	54
17 Wages.....	\$1,380,306	\$72,001	\$211,950	\$12,812
18 Miscellaneous expenses.....	\$4,700,710	\$349,700	\$497,899	\$18,200
19 Materials used:				
20 Total cost.....	\$17,934,820	\$1,328,085	\$4,152,300	\$273,208
21 Glass sand—				
22 Tons.....	521,844	59,373	152,861	6,908
23 Cost.....	\$1,047,824	\$62,931	\$231,592	\$16,195
24 Soda ash (carbonate of soda)—				
25 Tons.....	175,581	21,179	49,159	2,447
26 Cost.....	\$3,324,435	\$360,672	\$917,021	\$55,896
27 Salt cake (sulphate of soda)—				
28 Tons.....	2,892	129	226	125
29 Cost.....	\$42,912	\$1,698	\$2,758	\$1,995
30 Nitrate of soda—				
31 Tons.....	11,458	890	2,086	108
32 Cost.....	\$492,747	\$37,764	\$95,505	\$6,855
33 Limestone—				
34 Tons.....	40,868	7,088	15,291	.....
35 Cost.....	\$107,166	\$12,298	\$31,001	.....
36 Lime—				
37 Hundredweight.....	835,561	75,419	161,729	18,266
38 Cost.....	\$221,691	\$19,804	\$47,772	\$7,247
39 Arsenic—				
40 Pounds.....	1,026,178	89,764	220,437	8,226
41 Cost.....	\$37,351	\$2,908	\$8,427	\$416
42 Carbon—				
43 Tons.....	620	80	94	2
44 Cost.....	\$6,261	\$1,350	\$842	\$15
45 Manganese—				
46 Pounds.....	2,771,037	342,412	723,092	15,900
47 Cost.....	\$94,120	\$9,433	\$24,653	\$766
48 Litharge (red lead)—				
49 Pounds.....	9,480,863	86,400	763,660	15,000
50 Cost.....	\$548,800	\$4,320	\$39,433	\$1,200
51 Potash or pearlash—				
52 Pounds.....	5,232,397	.....	427,100	6,000
53 Cost.....	\$219,020	.....	\$18,821	\$270
54 Pots, not including those made at works—				
55 Number.....	5,900	234	591	20
56 Cost.....	\$334,210	\$16,027	\$34,486	\$500
57 Fuel.....	\$3,523,906	\$317,177	\$572,880	\$11,650
58 Lumber, casks, barrels, boxes, etc.....	\$3,709,149	\$256,983	\$1,043,029	\$61,444
59 Caps, metal trimmings, and rubber supplies.....	\$1,690,069	\$66,525	\$712,312	\$78,984
60 All other materials, including mill supplies, freight, and rent of power and heat.....	\$2,535,159	\$158,195	\$371,768	\$29,474
61 Products:				
62 Total value.....	\$58,050,467	\$5,338,181	\$10,916,311	\$577,636
63 Pressed and blown glass.....	\$21,925,258	\$149,265	\$2,859,087	\$64,697
64 Bottles and jars.....	\$33,608,063	\$4,949,156	\$7,213,456	\$407,868
65 Building glass.....	\$317,556	.....	.....	.....
66 All other products.....	\$2,199,590	\$239,760	\$843,768	\$105,071
67 Furnaces:				
68 Pot furnaces—				
69 Operated, number.....	210	7	21	1
70 Pots, number.....	2,294	91	263	6
71 Idle, number.....	36	4	3	.....
72 Pots, number.....	436	47	41	.....
73 Tanks—				
74 Continuous—				
75 Operated, number.....	262	22	73	5
76 Rings, number.....	2,178	270	590	44
77 Pot capacity, number.....	4,356	540	1,180	88
78 Idle, number.....	25	.....	4	.....
79 Rings, number.....	176	.....	25	.....
80 Pot capacity, number.....	352	.....	50	.....
81 Intermittent—				
82 Operated, number.....	84	4	.....	.....
83 Tons capacity, number.....	341	20	.....	.....
84 Pot capacity, number.....	341	20	.....	.....
85 Idle, number.....	12	1	.....	.....
86 Tons capacity, number.....	61	10	.....	.....
87 Pot capacity, number.....	61	10	.....	.....

¹ Includes establishments distributed as follows: California, 3; Colorado, 1; Georgia, 1; Indian Territory, 1; Michigan, 1; South Carolina, 1; Tennessee, 1; Wisconsin, 1.

AND BOTTLES AND JARS, BY STATES: 1905.

Maryland.	Massachusetts.	Missouri.	New Jersey.	New York.	Ohio.	Pennsylvania.	Virginia.	West Virginia.	All other states. ¹	
6	4	3	19	20	29	71	4	22	10	1
\$523,199	\$610,763	\$558,928	\$6,142,712	\$3,131,727	\$6,552,723	\$15,709,860	\$402,459	\$2,615,210	\$2,013,166	2
28	45	14	362	130	256	635	11	141	83	3
\$35,328	\$64,988	\$24,962	\$353,458	\$189,885	\$372,134	\$911,319	\$17,868	\$151,282	\$108,469	4
649	555	559	5,361	2,847	6,717	12,962	472	2,974	1,636	5
\$354,235	\$441,541	\$358,961	\$3,055,679	\$1,625,238	\$3,683,437	\$6,792,858	\$263,657	\$1,410,329	\$961,306	6
502	729	475	4,669	2,501	5,194	9,338	404	2,079	1,332	7
\$324,328	\$409,741	\$340,331	\$2,907,054	\$1,517,396	\$3,344,302	\$5,960,176	\$248,128	\$1,209,347	\$879,162	8
34	96	5	124	103	787	1,082		445	93	9
\$9,124	\$24,500	\$1,800	\$29,603	\$25,635	\$186,605	\$297,694		\$106,695	\$42,077	10
113	30	76	568	243	736	2,542	68	450	211	11
\$20,783	\$7,300	\$16,830	\$119,022	\$82,207	\$152,530	\$534,988	\$15,529	\$94,287	\$40,067	12
\$31,411	\$97,244	\$77,313	\$472,133	\$362,522	\$694,324	\$1,569,613	\$35,679	\$349,806	\$144,566	13
\$158,732	\$316,080	\$182,905	\$1,791,493	\$1,235,633	\$2,233,601	\$4,607,780	\$169,461	\$884,454	\$601,088	14
3,935	1,852	7,840	51,280	40,559	58,896	84,044	12,579	21,184	20,513	15
\$8,730	\$9,329	\$10,221	\$90,940	\$90,496	\$129,262	\$272,962	\$27,406	\$52,908	\$44,852	16
1,447	1,000	2,878	20,444	10,182	17,101	33,720	1,924	6,725	7,775	17
\$26,608	\$12,034	\$30,932	\$403,252	\$190,694	\$335,216	\$642,397	\$37,845	\$129,212	\$162,656	18
			16	12	1,327	789		258	10	19
			\$252	\$201	\$20,036	\$9,859		\$5,990	\$123	20
207	51	50	816	857	1,365	3,240	186	1,173	429	21
\$9,220	\$2,323	\$2,068	\$34,277	\$37,416	\$58,774	\$132,077	\$7,977	\$49,766	\$18,725	22
228		1,250	4,763	2,051	5,713	2,253		419	1,812	23
\$1,439		\$2,432	\$20,813	\$8,015	\$11,015	\$8,355		\$377	\$11,421	24
4,374	9,656	6,320	108,879	39,786	96,483	214,745	17,571	40,663	41,570	25
\$552	\$2,414	\$2,000	\$25,503	\$11,048	\$20,026	\$58,311	\$4,951	\$11,622	\$10,441	26
8,058	8,640	2,600	112,162	54,733	212,268	153,284	9,000	85,015	61,991	27
\$232	\$455	\$98	\$3,733	\$1,746	\$7,914	\$5,773	\$360	\$2,588	\$2,351	28
19			117	7	86	25	52	115	23	29
\$95			\$1,424	\$164	\$838	\$107	\$516	\$341	\$538	30
25,335	1,497	23,500	174,798	208,690	259,712	547,129	92,500	100,659	255,783	31
\$542	\$65	\$875	\$4,791	\$6,528	\$13,838	\$17,255	\$1,912	\$3,575	\$9,457	32
42,000	581,600		33,959	1,114,620	2,441,307	3,941,160		458,375	2,779	33
\$2,475	\$40,658		\$2,291	\$62,373	\$140,837	\$228,999		\$26,072	\$112	34
48,000	398,500		28,382	742,000	1,331,355	1,767,839	5,000	469,636	8,585	35
\$2,027	\$16,921		\$1,266	\$29,496	\$57,826	\$72,575	\$250	\$18,924	\$644	36
138	170		168	422	1,060	2,563		534		37
\$5,859	\$10,185		\$7,150	\$18,756	\$71,489	\$138,684		\$30,774		38
\$45,598	\$57,861	\$53,513	\$533,431	\$305,201	\$403,872	\$861,946	\$46,138	\$163,190	\$161,449	39
\$29,260	\$19,632	\$22,735	\$273,174	\$190,234	\$551,048	\$979,583	\$29,658	\$191,051	\$61,318	40
\$6,529		\$3,000	\$110,128	\$32,180	\$109,675	\$478,935	\$2,905	\$79,175	\$9,721	41
\$19,416	\$144,173	\$35,031	\$279,068	\$251,085	\$301,935	\$699,932	\$9,513	\$128,289	\$107,280	42
\$589,589	\$1,011,373	\$744,593	\$6,286,273	\$3,832,556	\$7,451,082	\$15,545,910	\$549,031	\$3,274,667	\$1,933,265	43
\$46,191	\$558,911	\$119,010	\$181,559	\$1,901,624	\$3,954,660	\$9,406,183		\$2,620,665	\$63,406	44
\$536,478	\$50,000	\$607,383	\$6,066,714	\$1,860,245	\$2,961,727	\$5,934,144	\$549,031	\$2,02,002	\$1,869,859	45
			\$38,000	\$50,000	\$50,000	\$179,556				46
\$6,920	\$402,462	\$18,200		\$20,687	\$484,695	\$26,027		\$52,000		47
6	7		16	22	30	77		21	2	48
74	52		123	200	393	829		248	15	49
2			4	1	4	12		6		50
17			36	8	69	130		88		51
1		3	34	20	28	44	6	13	13	52
5		36	302	147	216	333	41	100	94	53
10		72	604	294	432	666	82	200	188	54
			11	2	2	5		1		55
			71	15	20	39		6		56
			142	30	40	78		12		57
1			11	3	12	29		19	5	58
8			60	10	33	92		90	28	59
8			60	10	33	92		90	28	60
				1	2	3		5		61
				6	9	12		24		62
				6		12		24		63

AMERICAN ART GLASS.

The interest in art products in the United States has increased greatly in recent years. Formerly most of these art products were of foreign manufacture, but more and more our American manufacturers are devoting their attention to the production of wares that compare favorably with those from abroad. This is conspicuously the case with the glass products now made in the United States, as the following report will show.

HISTORY.

The discovery of glass was doubtless accidental, although the exact facts are not known, as glass was used in most remote times. At first glass seems to have been used only for ornamental purposes, as imitation gems and beads are to be found among early remains in the Orient. According to Pliny and Strabo the glassworks of Sidon and Alexandria were famous in their times and produced beautiful articles, which were cut, engraved, gilded, and stained with the most brilliant colors, in imitation of precious stones. The making of glass objects reached a very high degree of perfection in Egypt; and in that country the art of using oxides, especially cobalt, for coloring was very early acquired. Indeed, until the time of Tiberius the making of glass was largely an Egyptian monopoly; but during his reign the industry was introduced into Rome. Thence it passed to Gaul, Spain, and Britain. For a time after the fall of the Roman Empire the manufacture of glass declined, but its many applications soon led to its revival. Thus, although the use of window glass was known to the Romans, as is shown by the specimens found in Herculaneum, it was not until the Middle Ages that this application came into general use in most European countries, reaching perhaps its most conspicuous development in the stained windows of the great cathedrals. The making of art glass reached a high degree of perfection in Venice, where such extraordinary skill in manipulation was attained by the glass blowers that in 1291 they were all placed on the island of Murano, so that the secrets of the craft might not be carried to foreign lands. Here also, about 1300, amalgam of tin was first applied to the backs of glass plates, and Venetian mirrors became the wonder of the world.

It is not necessary to pursue further the history of the progress of the making of glass, for the manufacture gradually extended throughout the civilized

world. From Europe the industry came to the New World, where curiously enough no glass was previously known. Of more than passing interest is the fact that the first industrial enterprise established in the territory of the present United States was a glass bottle factory, which was erected in the Virginia colony soon after October, 1608. According to Dr. E. A. Barber, "eight glassworkers, Welshmen and Poles, were brought over to operate it." The house stood in the woods about half a mile from Jamestown, near Powhatan creek. This manufacture seems to have proved unsuccessful, and a second glasshouse was erected in 1621. In that year Capt. William Norton brought to Virginia four Italians to manufacture all kinds of glass, among which were beads for trade with the Indians.

The application of chemistry to the industrial arts has done much to increase our knowledge of them. This is especially true of glassmaking, for by chemical analysis the exact ingredients of a particular kind of glass may be determined, and this knowledge, when applied constructively, results in the production of the desired mass. The old haphazard selection of proper constituents to form the glass now has given place to exact selection made possible by knowledge obtained by scientific methods.

It is a far cry from Venice in the Old World to New York in the New, but the art glass of the famous artisans of Murano must now yield its prestige to the beautiful results obtained by the scientific makers of the exquisite Favrite glass.

MANUFACTURE.

The most important ingredient in the manufacture of glass is silica. In the early history of glassmaking, the silica known to yield a satisfactory quality of glass was naturally favored. The fact was soon realized, however, that the purer sand produced the better glass, and therefore an effort was made to free the silica from its impurities. At present, for the finer qualities of glass, the sand is subjected to a purification by washing, firing, and sifting.

In addition to silica, lime in the form of calcium carbonate or limestone, and an alkali, such as sodium sulphate or potassium carbonate, are the principal constituents of glass. Formerly these ingredients were brought together in a somewhat careless manner, but at present the utmost care is exercised in obtaining

exactly the proportions that are best suited to yield the desired result, chemical analysis being used to determine the proper mixture. An important addition to the mass is always a small quantity of broken glass, or cullet, which acts as a flux, causing the materials employed to react on one another at a lower temperature than they would if melted together without it. The mixing of the ingredients may be accomplished by turning over the various components with a wooden shovel and then sifting, or more satisfactorily, by using a mixer. A convenient mixer consists of a hollow drum with blades disposed like the floats of a paddle, revolving in a box of which the lower half is cylindrical.

The mass is melted in pots or crucibles, which are made of very refractory fire clay and should withstand a very high temperature. These crucibles, usually 8 to 12 in number, are assembled in a circular furnace at the base of a large chimney. Formerly the heat was obtained by the direct contact of the fuel and the pots, but now regenerative furnaces are commonly used, which burn gas, or, in the United States, to a larger extent, natural gas or petroleum.

When the mass has become molten and is of proper consistency it is collected in a soft ball on the end of an iron tube. Then this mass is shaped, either by carefully manipulating it by twisting it and by blowing into the tube, or else by forcing it into an iron mold where it is pressed. The details of this portion of the process naturally vary according to the article to be made.

The object, after it has been shaped, is cooled in an annealing oven in which the temperature is so regulated that the cooling proceeds with extreme slowness. The artificial heat, which is applied at the outset, is gradually diminished until the temperature becomes normal. The special object of the process is to allow the pores, which have been distended by heat, to contract evenly throughout the material, instead of closing more rapidly on the surface than on the inside.

By definition, glass is the transparent solid that is formed by the fusion of a siliceous material, such as sand, and an alkali. It may be further defined as consisting of one or more insoluble silicates with an excess of silica. There are two principal varieties of glass, crown or plate glass and flint glass. The former consists of silica with either potash or soda and lime, and the latter of silica with either potash or soda and a lead salt. Thus there are four possible varieties of glass, each one of which may be made gradually to approach the others in properties by varying the proportions of its constituents. These varieties are as follows, beginning with the one least fusible: (1) Potash lime glass, (2) soda lime glass, (3) potash lead glass, and (4) soda lead glass.

There are three principal varieties of art glass in which the glassmakers of the United States have distinguished themselves. They are stained glass, cut glass, and miscellaneous art glass.

Stained glass.—Originally stained glass, especially that used in windows, was in reality a mosaic formed of bits of colored glass attached to each other by means of leaden frames. A later development was the art of painting on glass—that is, of applying with the brush fusible pigments that were fixed by heat. The perfection of this art reached its culmination among the French in the thirteenth century, and its application was extended throughout Europe in the making of cathedral windows. The demand for such glass became so great that the work was entrusted to artisans, a step which first led to the debasement of the art and ultimately, in the seventeenth century, to its decadence. In recent years it has been revived, notably in the United States, for the assertion is justly made that John La Farge has “done more than any others during the last decade to replace glass painting again in the sphere of real art.” The principal places for the manufacture of stained glass in this country are New York city and Chicago.

Cut glass.—The details of the process of making cut glass may perhaps best be summarized by the two words “painstaking carefulness.” The materials that are used in the composition of the glass are selected with careful consideration. After being mixed, these ingredients are for thirty-six hours subjected to the heat of the furnace. Absolute homogeneity is essential. The mass is liquid, but it is sufficiently viscous to be so plastic and pliable as to lend itself most satisfactorily to the manipulations of the blower and modeler. This artisan gathers the lump of molten glass on the end of his hollow pipe, through which he blows until the glass globule has been distended to the desired proportions. Care, great care, must be exercised so that the glass shall be entirely free from any bubbles or other defects. Then the necessary smooth surface is obtained by rubbing the glass upon a flat slab of iron. Annealing then follows, and as the glass is extremely sensitive to the slightest change of atmosphere, again the utmost care must be exercised. A defect in the annealing would inevitably mean a defect in the glass. Therefore, although the process of cooling the glass to normal temperature is slow and tedious, frequently in the case of large and delicate pieces a double system of annealing is practiced that is, the pieces are packed a second time in a kiln, again fired, and then allowed to cool.

The blank glass now goes to the cutter. All that has gone before is simply preparatory. The pattern to be followed is traced on the blank, and the design is cut by an iron wheel against which the blank is pressed. Deeper and deeper the wheel cuts into the glass. “He dare not veer nor vary a hairsbreadth in curve or circle, groove, or angle—else is the symmetry of the design completely ruined. His nerve and his hand must be strong and steady as iron, so that he may gauge the exact effect of every contact between the glass and the wheel.” Days and even weeks are

sometimes required to grind a single piece of glass, and then it is only in the rough state. The design has been ground out by the wheel, but it has to be brought to the perfection of smoothness and polish. To accomplish this the smoother applies the glass to a sandstone wheel in order to clean out every particle of sand that may have clung to the glass, and to remove every roughness. Then, and only then, is the article ready to be polished into full brilliancy and beauty. This last process is done on a swiftly revolving wheel sprinkled with putty powder. As the wheel turns, the dullness of the blank gradually disappears and is replaced, as if by magic, by the sparkle and brilliancy of the perfect finished product.

In the United States about twelve producers have combined to form a national association of cut glass manufacturers. Most of these cut glass makers purchase the blanks and confine their operations simply to the cutting, although three make their own glass.

A variety of glass, originally made in England, but now produced by nearly all cut glass makers in the United States, is called "rock crystal." It is made of the same body as the ordinary cut glass, but is said to be ground with an emery wheel instead of a stone wheel. In this rock crystal the incision is not so deep as in the true cut glass. Flower and fruit effects that are exceedingly artistic are produced in this manner, and some very attractive results are obtained by the further addition of dull or mat effects. The amount of rock crystal made in this country does not exceed one-tenth of the entire output of art glass.

Miscellaneous.—Thus far in the United States the making of art glass, with one notable exception, has not been a marked success. The reason for this is very simple. The novelties produced have been so easily imitated that almost immediately upon their introduction rival firms have undertaken their imitation, and in their haste to secure their share of the market have practically destroyed the value of the product. A case in point may be cited. Some years ago an exceedingly pleasing variety of art glass, called "amberina," was made. Its chief attraction was its color, which was of a rich red at the top, passing gradually into yellow at the base, with all the shades of pink and orange between. It was a success at once, but so many imitations were put upon the market that the original maker, to save himself from loss, was compelled to sell his entire stock to department stores at reduced prices. This glass is now a rarity. Such an experience is by no means an isolated one in the history of American art wares, whether glass or pottery.

The one successful variety of art glass invented in the United States is the most original produced in the world since the time of the famous Venetian glass blowers. For reasons that are obvious from what has been said in the preceding paragraph, the secret of its manufacture is carefully preserved. Enough of its his-

tory is known, however, to permit the statement that after experimenting for a number of years, its inventor succeeded in obtaining a body that possessed the power of absorbing the vapors of metallic oxides which on cooling produced the beautiful iridescence that is one of the principal characteristics of the ware. Its chief individuality lies in its diversified radiance of iridescence and in the use of glass of various colors to produce design as an integral part of the structure of the object. An important feature in this glass is that all the decoration, except cutting and engraving, is done while the glass is in the plastic condition before it has been annealed. That is to say, there is no painting on of color, or luster, or texture; whatever effect is to be observed in the piece is one produced by true glass blowing and not by painting. This glass is particularly fitted for windows and mosaics, owing to its limitless range of color, diversity of tone, and endless variety of texture; also, for like reasons, it is extensively used for making blown, cast, rolled, wrought, and cut objects in ornamental glass. Its artistic suggestiveness and the readiness with which it combines with itself, color with color, and glass over glass, has led to the production of vases, lamps, bowls, and numerous other articles, made on purely original lines, and each one marked by a strong individuality. The objects made of this glass are, without exception, blown instead of being molded, as is the usual practice in glassware.

No such beautiful variety of glassware could remain long without attempts being made to reproduce it, and successful efforts were made both in Europe and in this country. Of the American imitations one made in New York city is particularly successful. It closely resembles the original, of which it has become a competitor in the market of art wares. Besides being made up into vases and other objects of art, the imitation finds extensive use in the manufacture of mosaic lamp shades.

One of the largest glass plants in New England, in addition to cut glass, which is perhaps its chief product, makes a crystal glass decorated with attractive designs of fruits and flowers, the outlines of which are traced in gold and fired. The objects made are for table and other household uses, and the designs are confined to fruits and flowers. Formerly this establishment made some interesting varieties of colored art glassware, three types of which were noteworthy. Two were shaded glasses, the first passing from a light canary yellow into a bright pink, while the second began as a delicate gray-blue and slowly developed into a pink. Both of these glasses were made either with brilliant or with dull mat effects. The third was a dark body in which were inlaid bright bits of colored glass, suggesting inlaid gems. Several varieties of iridescent and opalescent glassware were formerly made by this corporation. In some varieties a dark body was used, and in others the iridescence appeared on a plain crystal. More re-

cently they have introduced a new variety of glassware that finds a market as lamp shades. It consists of an ordinary glass body molded so as to bring out in relief various flowers or fruits which are painted with enamel colors so as to resemble the simulated objects as closely as possible and then fired. The finished product is a very brilliantly colored lamp shade which over a light closely resembles a bouquet in natural colors.

Two interesting varieties of glass manufactured in Connecticut are made up into novelties, such as fern dishes, jewel boxes, etc. One is an opalescent glass body, with a dark ground of solid color, such as brown, drab, or green, which is decorated by hand, usually with designs of flowers, and then fired in a kiln. The objects, such as jewel cases, have metal trimmings which are gold plated. The second is identical with the foregoing except that it possesses lighter or more daintily colored body.

A special ware is produced in Pennsylvania by methods similar to those followed in Nancy and Baccarat in France, and in certain places in Bohemia. The technical processes are quite simple. First, the body is produced in a shape which is satisfactory. After a pattern has been painted with a brush on the body, the object is immersed in a bath of hydrofluoric acid which will eat away the glass except where it is protected by the pattern, which, owing to its power of withstanding the acid, is called a "resist." Engraving then follows, which consists of the incision of the pattern by the use of a small rotating disk fed with emery and oil. This disk, sometimes not larger than the head of a pin, forms the point of the engraving tool against which the glass object is pressed to shape the incision, while the disk itself rotates on a fixed axis. Gilding is the application of gold to the glass direct, to a pattern previously etched, or to an enamel put upon the glass in order to form a design in relief. The gold thus applied is finally fused to the glass by heat. The color effect depends on the variously tinted layers of glass partly removed by the artisan, and on the etched surface, which shows a beautiful iridescence. This art glass made in Pennsylvania includes engraved, etched, or gilded glassware, and often the decoration embraces a combination of all these methods, sometimes with enamel in addition. As this glass is all handmade from beginning to end, it shows the artist's individuality expressing itself in the actual material.

One factory in Massachusetts has earned well deserved recognition for the high grade of its art glass. Although the variety of glass which it produces can hardly be called distinctive, still the excellent quality of the body (for only the most carefully selected materials are used) is readily recognized, and the shapes, some of which are adapted from antique and medieval forms, are well chosen. This company makes art glassware, such as vases, decanters, rose bowls, drinking glasses, and finger bowls in crystal, and also in green,

ruby, and opal, either plain or decorated with gold. The application of gold is perhaps the most distinctive feature of this company's products, although the bronze-green objects made by it are unique. Specimens with a glint or iridescence suggesting the hues of a variegated silk are remarkably praiseworthy.

A company in Ohio manufactures an extensive variety of crystal, colored, and opalescent tableware and novelties. The objects made are molded or pressed, and the ornamentation is accomplished by using shapes that are susceptible of special decoration. In a sweet-pea vase the color will be green and perhaps shaded, passing from a light tint to a darker one and ending with an opalescent border. The decoration frequently includes colored designs, perhaps flowers, painted on a solid background, often blue or ruby. Gilding is freely resorted to, and the beauty of the colored glass is enhanced by gold bands or lines. Flashed effects, spots of various colors artistically arranged with gilt borders, are sometimes used, and an opal glass with ivory tints decorated with flowers and gold is one of the special products of this company. These goods are naturally of a general commercial character and do not compete with the more distinctive art wares.

A corporation in West Virginia makes a special variety of art glass. This glass consists of either a plain or colored body in which metal is incorporated and over which a thin film of iridescence is made to appear irregularly. Color, metal, and iridescence serve to produce the decorative effects. This glass is made up into vases and into fancy household and table wares. Some varieties of this glass consist of a plain body having an engraved pattern, the incised portions of which are filled with gold and color, a process which yields especially attractive effects when flowers or garlands are used in the design.

Special varieties.—The following varieties of glass, while not of an artistic nature, are included as worthy of description on account of their peculiar properties.

The fact that glass is soluble in water and other liquids has been frequently urged as an objection to its use for vessels employed in making chemical analyses. Makers of chemical glass have at times introduced varieties of glassware which have been said to possess great resisting properties. The so-called Jena glass from Germany is perhaps the best known of these.

One American glass deserves mention on account of the resistance which it offers to the action of chemical reagents and because of its wide use in consequence of these properties for flasks, beakers, and other articles of glass necessary in chemical operations. A series of comparative tests showed that a liter of distilled water dissolved 4.6 milligrams of the American glass, as compared with 6.3 milligrams of Jena glass, while a solution of 10 parts of sulphuric acid and 10 parts nitric

acid in 80 parts of distilled water dissolved 48.1 milligrams of the American glass as compared with 33.4 milligrams of Jena glass and 113.4 milligrams of Schilling glass. In comparison with other glasses commonly used the American product "has been found to show the greatest resistance to the corrosive action of water and alkaline reagents."

Of some interest also is a variety of glass called variously "hot cast glass" or "hot cast porcelain." It is composed of cryolite 30 parts, sand 100 parts, and zinc oxide 10 parts, a compound which when heated in a crucible yields a white opaque glass that melts at a low temperature. In consequence of this property it was for a time rather widely used in the manufacture of souvenir vases and other objects that were readily produced in a mold. It was also used to some extent in the form of slabs as a substitute for marble. More recently it has been employed to make containers for certain corrosive acids, such as hydrofluoric or hydrofluosilicic acids.

Improvements in methods.—Although no radical changes in the methods of glassmaking are to be noted, minor improvements tending toward the production of a better article are conspicuous. A more careful selection of the crude materials is now generally required in the manufacture of the better qualities of glass. The application of chemical analysis for the purpose of demonstrating the absence of impurities in the constituents, or for the determination of the causes of a peculiar effect in the finished product, should be

mentioned as one of the steps in advance. The replacing of hand labor by mechanical devices is found to save time and also to reduce the cost of an object. In the manufacture of cut glass the multiplication of the pattern is accomplished mechanically; thus, the pattern is first drawn on steel, then etched, and transferred to the glasses mechanically instead of being drawn on each piece of glass by hand. Also, in engraving art glass the foot lathe formerly used has been replaced by a power lathe. The greatest improvement, however, consists in the better division of labor, the training of a man to be a specialist in one operation rather than a less skilled worker in all. On this point one glassmaker writes: "The main improvement, however, has to be looked for in the training of workmen and chemical research. Both tasks are beyond individual efforts, as is shown by the numerous trade schools serving also as experiment stations subsidized by the government in countries where this industry flourishes."

Quality of products.—The information obtained shows very clearly that the quality of the stained glass and the cut glass made in the United States is superior to that of the imported glass. In the miscellaneous art glass the results have not been so satisfactory, although one variety is conceded to be unsurpassed as an original product, and another to be of high grade. The remaining varieties are excellent so far as they go, but they are neither novel nor of better quality than the imported.

CLAY PRODUCTS

(875)

CLAY PRODUCTS.

By CHARLES E. HALL.

At the census of 1905 the schedules of inquiry sent to establishments manufacturing brick, pottery, and other articles of which clay is the principal material, in addition to the general schedule which was sent to all manufacturing establishments, consisted of a supplemental schedule intended only for reports of establishments manufacturing chiefly brick and drain-tile, and another special schedule for establishments having as their principal product pottery, terra cotta,

and fire clay products. In addition to special inquiries this latter schedule contained all the inquiries of the former, as establishments classified as potteries manufacture, in many instances, the usual products of brickyards.

Table 1 is a comparative summary of the statistics for the clay industry in its entirety as returned at the censuses of 1850 to 1905, with percentages of increase.

TABLE 1.—CLAY PRODUCTS—COMPARATIVE SUMMARY, WITH PER CENT OF INCREASE: 1850 TO 1905.

	CENSUS.							PER CENT OF INCREASE.					
	1905 ¹	1900	1890	1880	1870	1860	1850	1900 to 1905	1890 to 1900	1880 to 1890	1870 to 1880	1860 to 1870	1850 to 1860
Number of establishments.....	5,507	6,423	6,535	6,383	3,959	2,240	2,121	14.3	1.7	2.4	61.2	76.7	5.6
Capital.....	\$230,882,977	\$148,038,323	\$108,705,670	\$35,039,939	\$26,776,011	\$9,707,952	\$5,217,231	56.0	36.2	210.2	30.9	175.8	86.1
Salaried officials, clerks, etc., number.....	7,442	5,203	26,291	(*)	(*)	(*)	(*)	43.0	17.3	-----	-----	-----	-----
Salaries.....	\$8,158,213	\$5,036,195	\$4,254,943	(*)	(*)	(*)	(*)	62.0	18.4	-----	-----	-----	-----
Wage-earners, average number.....	118,449	105,693	123,156	76,576	50,167	24,569	19,801	12.1	14.2	60.8	52.6	104.2	24.1
Total wages.....	\$53,823,670	\$39,575,070	\$38,578,389	\$17,044,259	\$13,332,547	\$5,224,859	\$4,890,422	36.0	2.6	126.3	27.8	155.2	6.8
Men 16 years and over.....	109,954	98,127	115,600	66,914	45,333	24,038	19,139	12.1	15.1	72.8	47.6	88.6	25.6
Wages.....	\$51,476,326	\$37,957,248	\$37,426,873	(*)	(*)	(*)	(*)	35.6	1.4	-----	-----	-----	-----
Women 16 years and over.....	5,989	4,557	2,235	1,216	576	531	662	31.4	103.9	83.8	111.1	8.5	19.8
Wages.....	\$1,870,699	\$1,142,579	\$536,269	(*)	(*)	(*)	(*)	63.7	113.1	-----	-----	-----	-----
Children under 16 years.....	2,506	3,009	5,321	8,446	4,258	(*)	(*)	16.7	243.5	37.0	98.4	-----	-----
Wages.....	\$476,645	\$475,243	\$615,247	(*)	(*)	(*)	(*)	0.3	22.8	-----	-----	-----	-----
Miscellaneous expenses.....	\$14,625,214	\$6,845,040	\$7,111,776	(*)	(*)	(*)	(*)	113.7	23.8	-----	-----	-----	-----
Cost of materials used.....	\$32,907,961	\$22,921,384	\$18,257,998	\$12,683,897	\$9,531,162	\$2,930,547	\$1,768,374	43.6	25.5	43.9	33.1	225.2	65.7
Value of products.....	\$135,352,854	\$95,533,862	\$89,827,785	\$41,810,920	\$36,368,151	\$13,987,828	\$8,189,359	41.7	6.4	114.8	15.0	160.0	70.8

¹ Exclusive of the statistics of 2 establishments engaged primarily in the manufacture of other products that made clay products, to the value of \$299,452.

² Decrease.

³ Includes proprietors and firm members, with their salaries; number only reported in 1900 and 1905, but not included in this table.

⁴ Not reported separately.

⁵ Not reported.

The decrease since 1900 in the number of establishments shown in the above table is noteworthy, and was caused largely by the consolidation of a number of plants under a single management. Notwithstanding this decrease in the number of establishments reporting, the capital increased \$82,844,654, or 56 per cent, between 1900 and 1905. Of this increase \$44,974,133, or 54.3 per cent, was in the pottery, terra cotta, and fire clay products branch of the industry, and \$37,870,521, or 45.7 per cent, in the brick and tile branch. The increase in the former over 1900 was 68.2 per cent, and in the latter 46.1 per cent.

The concentration of the industry is further indicated by the increase of 37.5 per cent in the average number of employees per establishment between 1900 and 1905, and by the fact that the total value of products from the 5,507 establishments in 1905 exceeds that from the 6,423 establishments reported in 1900

by \$39,818,992, or 41.7 per cent. This increase during five years is largely in excess of that shown for any ten-year period since 1850, with the single exception of that of \$48,016,865 between 1880 and 1890. The steady increase in the price of lumber, the growing demand of builders and investors for building material that affords the greatest protection against fires, and the increasing appreciation of the products of American potteries, are conditions favorable to a rapid growth of the manufacture of clay products.

At the census of 1905 compared with that of 1900 there was an increase in the number of salaried officials and in the amount of salaries. The number of wage-earners employed also showed an increase, although there was a decrease of 16.7 per cent in the average number of children under 16 years of age, which was due largely to the operation of compulsory education and factory laws of the various states and to the introduction of labor saving machinery.

When the increase in the cost of materials used is compared with that of the value of products, the figures show that from 1890 to 1900 the cost of materials increased 25.5 per cent and the value of products only 6.4 per cent; and that during the following five years

the cost of materials increased 43.6 per cent and the value of products 41.7 per cent.

Table 2 is a comparative summary of the manufacture of clay products in 1900 and 1905, by states and territories and geographic divisions.

TABLE 2.—CLAY PRODUCTS—COMPARATIVE SUMMARY, BY STATES AND TERRITORIES AND GEOGRAPHIC DIVISIONS: 1905 AND 1900.

STATE, TERRITORY, OR GEOGRAPHIC DIVISION.	Census.	Number of estab- lish- ments.	Capital.	WAGE-EARNERS AND WAGES.								Miscella- neous ex- penses.	Cost of materials used.	Value of products.
				Total.		Men 16 years and over.		Women 16 years and over.		Children under 16 years.				
				Average number.	Wages.	Average number.	Wages.	Aver- age num- ber.	Wages.	Average num- ber.	Wages.			
United States..	1905 1900	5,507 6,423	\$230,882,977 148,038,323	118,449 105,693	\$53,823,670 39,575,070	109,954 98,127	\$51,476,326 37,957,248	5,989 4,557	\$1,870,699 1,142,579	2,506 3,009	\$476,645 475,243	\$14,625,214 6,845,040	\$32,907,961 22,921,384	\$135,352,854 95,533,862
North Atlantic divi- sion.	1905 1900	1,160 1,256	87,945,484 60,856,038	41,205 39,580	19,094,449 15,838,193	38,464 36,828	18,351,367 15,196,046	1,766 1,757	529,969 456,545	975 995	213,113 185,602	5,135,378 3,145,726	11,228,432 9,083,014	46,958,848 37,562,045
Maine.....	1905 1900	66 74	599,015 623,335	330 547	164,719 232,330	328 546	164,172 232,250	1	437	1	110 80	21,721 61,719	117,500 163,742	420,111 662,235
New Hampshire..	1905 1900	36 57	932,579 702,713	527 632	228,979 241,915	524 622	228,493 239,412	1 2	305 399	2 8	181 2,104	51,287 26,964	151,118 158,234	529,008 570,287
Vermont.....	1905 1900	9 16	100,085 130,298	108 122	46,811 44,842	108 119	46,811 44,442	..... .....	..... .....	..... 3	..... 400	9,815 8,487	20,724 29,137	104,235 131,525
Massachusetts...	1905 1900	89 110	4,052,595 3,946,239	1,665 2,013	789,717 884,452	1,593 1,957	767,778 867,797	61 54	19,354 15,064	11 7	2,585 1,591	257,153 166,938	504,639 588,643	1,888,965 2,181,510
Connecticut.....	1905 1900	39 45	2,178,196 1,862,138	1,182 1,167	536,621 486,488	1,147 1,139	526,395 480,363	27 19	7,940 4,396	8 9	2,286 1,729	124,520 74,964	236,921 218,635	1,225,327 1,074,202
New York.....	1905 1900	235 269	16,065,277 12,843,327	9,432 9,007	4,494,260 3,637,462	8,983 8,570	4,363,346 3,529,338	407 342	123,144 89,154	42 95	7,770 18,970	1,184,602 895,878	2,240,304 1,631,003	10,719,042 8,073,769
New Jersey.....	1905 1900	153 157	24,087,865 18,932,379	11,434 10,487	5,506,212 4,677,059	10,181 9,327	5,151,852 4,348,418	962 929	286,990 287,089	291 231	67,370 41,552	1,354,865 972,580	3,292,791 2,703,696	13,547,183 10,786,673
Pennsylvania....	1905 1900	528 528	39,593,593 21,815,609	16,230 15,605	7,192,127 5,633,645	15,303 14,553	6,967,517 5,454,026	307 411	91,799 60,443	620 641	132,811 119,176	2,031,654 938,196	4,508,660 3,589,924	18,039,187 14,081,844
Not distributed by states ¹ .	1905	5	336,279	297	135,003	297	135,003	.....	.....	.....	.....	99,761	155,775	485,790
South Atlantic divi- sion.	1905 1900	506 619	19,422,362 12,797,905	11,633 11,665	3,906,570 3,249,971	10,748 10,746	3,703,827 3,081,203	440 356	144,582 98,341	445 563	58,161 70,427	1,041,458 474,829	2,432,905 1,661,703	10,041,749 7,677,880
Delaware.....	1905 1900	21 25	272,325 283,637	209 215	85,941 70,063	207 211	85,437 69,338	..... 1	..... 100	2 3	504 625	32,511 7,772	26,485 22,439	205,236 167,692
Maryland.....	1905 1900	66 63	6,484,484 5,074,263	2,389 2,583	923,073 837,798	2,222 2,326	878,600 778,876	81 80	29,080 31,287	86 177	15,393 27,635	168,224 92,946	364,820 352,299	1,948,801 1,679,166
District of Co- lumbia.	1905 1900	14 17	765,330 972,040	368 546	141,380 204,077	357 546	140,229 204,077	..... .....	..... .....	11	1,151	30,320 43,332	68,332 90,954	297,201 481,145
Virginia.....	1905 1900	87 85	3,267,056 1,840,713	2,045 1,518	697,561 427,588	1,933 1,432	682,156 416,692	7 2	2,240 567	105 84	13,165 10,329	180,050 66,899	458,814 229,108	1,880,901 1,089,399
West Virginia....	1905 1900	54 56	4,229,633 2,219,842	2,033 1,819	963,554 684,820	1,645 1,498	844,810 610,536	352 263	113,262 64,949	36 58	5,482 9,335	302,485 145,364	555,933 316,103	2,156,485 1,541,239
North Carolina..	1905 1900	117 178	742,617 527,925	1,163 1,546	266,698 292,925	1,097 1,442	259,467 283,435	..... 2	..... 300	66 102	7,231 9,193	42,088 25,964	193,102 173,507	802,145 725,016
South Carolina...	1905 1900	53 86	614,347 366,711	963 1,191	203,865 251,106	932 1,130	200,679 245,094	..... 5	..... 563	31 56	3,186 5,449	46,818 26,324	191,139 136,986	697,047 596,693
Georgia.....	1905 1900	80 91	2,704,713 1,311,889	2,038 1,986	515,900 414,092	1,937 1,912	504,639 407,255	..... 8	..... 575	101 71	11,261 6,262	219,523 60,274	509,361 306,289	1,817,299 1,259,577
Florida.....	1905 1900	14 18	341,857 200,885	425 261	108,598 67,499	418 249	107,810 65,900	..... .....	..... .....	7 12	788 1,599	19,439 5,954	64,919 34,018	236,634 137,953
North Central divi- sion.	1905 1900	2,826 3,433	98,777,325 62,015,342	51,048 41,878	24,495,361 16,332,274	46,707 38,603	23,182,302 15,609,538	3,711 2,425	1,184,526 583,334	630 850	128,533 139,402	6,744,399 2,590,142	15,131,721 9,797,007	61,141,974 39,911,855
Ohio.....	1905 1900	795 934	38,408,918 22,907,596	22,638 17,223	10,618,467 6,967,817	19,108 14,861	9,472,692 6,401,288	3,355 2,154	1,110,277 528,863	175 208	35,498 37,666	2,886,589 1,029,550	6,455,844 4,211,061	25,686,870 16,480,812
Indiana.....	1905 1900	430 607	9,285,363 6,030,738	5,354 4,859	2,383,817 1,726,782	4,974 4,535	2,313,115 1,667,856	301 200	57,438 38,703	79 124	13,264 20,223	645,408 241,275	1,627,858 864,642	6,461,377 4,222,529
Illinois.....	1905 1900	480 619	19,596,095 12,710,709	7,879 7,229	4,296,138 2,971,907	7,758 7,034	4,265,458 2,938,064	34 37	11,960 9,250	87 158	18,720 24,593	1,355,846 499,355	2,437,581 1,601,742	10,802,721 7,224,915
Michigan.....	1905 1900	175 186	2,298,557 1,777,532	1,639 1,592	752,099 530,930	1,608 1,542	745,495 523,054	3 19	930 3,277	28 31	5,674 4,599	211,498 65,844	468,539 275,327	1,940,907 1,280,590

¹ Includes only brick and tile. Pottery, terra cotta, and fire clay products are included in total "not distributed by states."

² Includes 2 establishments in Rhode Island manufacturing brick and tile.

³ Includes figures for 5 establishments (2 in Maine, 2 in New Hampshire, and 1 in Vermont) manufacturing pottery, terra cotta, and fire clay products.

TABLE 2.—CLAY PRODUCTS—COMPARATIVE SUMMARY, BY STATES AND TERRITORIES AND GEOGRAPHIC DIVISIONS: 1905 AND 1900—Continued.

STATE, TERRITORY, OR GEOGRAPHIC DIVISION.	Census.	Number of estab- lish- ments.	Capital.	WAGE-EARNERS AND WAGES.								Miscella- neous ex- penses.	Cost of materials used.	Value of products.		
				Total.		Men 16 years and over.		Women 16 years and over.		Children under 16 years.						
				Average number.	Wages.	Average number.	Wages.	Average num- ber.	Wages.	Average num- ber.	Wages.					
North Central divi- sion—Continued.																
Wisconsin.....	1905	145	\$3,076,566	1,650	\$690,995	1,603	\$682,821	3	\$255	44	\$7,919	\$133,811	\$556,637	\$1,863,085		
	1900	172	2,233,853	1,479	545,754	1,418	534,552	1	100	60	11,102	95,638	731,574	1,810,206		
Minnesota.....	1905	105	2,684,609	1,306	651,844	1,287	647,739	3	630	16	3,475	141,256	485,166	1,789,861		
	1900	112	1,579,698	1,276	481,493	1,232	473,632	10	2,181	34	5,680	50,775	339,662	1,217,743		
Iowa.....	1905	309	4,937,504	2,711	1,282,613	2,664	1,274,173	4	1,130	43	7,310	313,450	866,669	3,440,225		
	1900	356	3,437,613	2,220	862,159	2,175	854,392	1	360	44	7,407	140,459	517,580	2,224,920		
Missouri.....	1905	195	12,835,985	4,869	2,364,295	4,737	2,332,983	5	1,280	127	30,032	787,799	1,420,621	5,682,267		
	1900	256	9,003,185	4,047	1,514,674	3,891	1,492,566	.....	.....	156	22,108	362,296	842,077	3,650,400
North Dakota...	1905	14	204,497	117	59,825	116	59,625	.....	.....	1	200	11,121	34,345	170,257
	1900	13	218,950	121	56,977	114	55,377	3	600	4	1,000	3,865	34,734	158,874		
South Dakota...	1905	10	174,535	49	27,401	49	27,401	.....	.....	.....	.....	6,837	20,305	83,756
	1900	11	64,125	43	19,687	43	19,687	.....	.....	.....	.....	1,378	12,625	46,150
Nebraska.....	1905	99	1,565,889	905	471,425	882	466,285	1	210	22	4,930	61,343	277,174	1,131,913		
	1900	107	1,276,933	857	328,244	839	324,956	.....	.....	18	3,288	41,434	203,865	841,305
Kansas.....	1905	69	3,708,807	1,931	896,442	1,921	894,515	2	416	8	1,511	189,441	480,982	2,088,735		
	1900	60	774,410	927	325,850	914	324,114	.....	.....	13	1,736	58,273	162,118	753,411
South Central divi- sion.	1905	643	11,666,594	9,706	3,335,510	9,244	3,263,922	70	10,820	392	60,768	978,675	2,308,324	9,403,978		
	1900	726	6,408,437	9,124	2,372,516	8,573	2,303,495	12	2,209	539	66,812	367,285	1,352,737	6,010,975		
Kentucky.....	1905	109	3,080,448	2,426	817,728	2,303	799,372	68	10,600	55	7,756	255,451	523,007	2,133,291		
	1900	100	1,504,006	1,759	484,800	1,675	473,326	10	1,729	74	9,745	64,875	326,262	1,355,094		
Tennessee.....	1905	92	1,385,975	1,531	506,030	1,481	499,702	.....	.....	50	6,328	167,627	344,165	1,409,673
	1900	109	1,062,993	1,452	384,752	1,366	374,583	.....	.....	86	10,169	111,544	240,063	944,610
Alabama.....	1905	79	1,478,722	1,309	388,192	1,217	375,392	2	220	00	12,580	94,666	282,393	1,120,259		
	1900	93	631,334	1,349	323,370	1,201	304,018	.....	.....	148	19,352	42,858	202,455	883,129
Mississippi.....	1905	74	846,508	903	271,806	831	259,048	.....	.....	72	12,758	43,095	177,423	782,842
	1900	78	506,214	929	207,463	872	201,605	.....	.....	57	5,858	26,337	103,145	540,725
Louisiana.....	1905	67	1,388,467	1,063	410,514	1,013	401,538	.....	.....	50	8,976	102,773	217,252	1,003,477
	1900	61	683,003	1,064	267,021	961	254,631	2	480	101	11,910	47,989	107,993	553,465		
Arkansas.....	1905	58	966,827	547	194,177	528	191,348	.....	.....	19	2,829	90,736	200,183	812,676
	1900	65	388,319	494	127,252	474	124,582	.....	.....	20	2,670	63,634	136,587	336,899
Indian Territory.	1905	27	410,536	217	104,219	216	104,069	.....	.....	1	150	23,176	51,461	248,931
	1900	13	26,077	45	17,960	43	17,658	.....	.....	2	302	2,281	6,419	35,075
Oklahoma.....	1905	23	321,974	184	81,559	183	81,259	.....	.....	1	300	32,757	76,476	261,438
	1900	36	109,825	173	62,902	170	62,263	.....	.....	3	639	24,420	149,712	149,712
Texas.....	1905	114	1,787,137	1,526	561,285	1,472	552,194	.....	.....	54	9,091	168,394	435,964	1,631,391
	1900	171	1,496,666	1,859	496,996	1,811	490,829	.....	.....	48	6,167	59,308	278,393	1,212,266
Western division.....	1905	000	12,845,929	4,797	2,946,313	4,732	2,929,566	2	802	63	15,945	714,998	1,774,558	7,712,555		
	1900	389	5,960,601	3,446	1,782,116	3,377	1,766,966	7	2,150	62	13,000	267,058	1,026,923	4,371,107		
Montana.....	1905	14	240,100	97	76,665	95	76,020	.....	.....	2	645	13,788	38,069	178,675
	1900	28	451,709	226	150,892	223	149,942	1	350	2	600	15,165	91,606	314,340		
Idaho.....	1905	19	91,257	72	44,891	71	44,480	.....	.....	1	411	8,762	27,415	112,770
	1900	24	51,882	44	18,144	44	18,144	.....	.....	.....	.....	1,214	8,805	46,609
Wyoming.....	1905	3	14,096	6	5,714	6	5,714	.....	.....	.....	.....	2,553	2,413	17,195
	1900	4	6,775	11	4,900	11	4,900	.....	.....	.....	.....	216	1,033	8,450
Colorado.....	1905	74	1,868,140	971	590,656	958	586,116	.....	.....	802	3,738	123,527	460,808	1,603,837
	1900	75	1,381,710	812	452,949	806	451,304	1	350	5	1,295	60,157	247,049	1,071,388		
New Mexico.....	1905	10	41,700	64	31,409	57	29,896	.....	.....	7	1,513	1,768	17,605	80,910
	1900	11	55,395	122	48,586	121	48,486	.....	.....	1	100	1,533	22,878	108,090
Arizona.....	1905	5	79,428	30	20,380	30	20,380	.....	.....	.....	.....	10,959	16,475	45,881
	1900	19	56,945	89	46,980	83	45,752	1	70	5	1,158	9,950	15,202	101,758		
Utah.....	1905	45	529,414	325	192,475	306	188,877	.....	.....	19	3,598	35,136	97,446	422,691
	1900	56	209,407	285	100,151	263	96,300	.....	.....	22	3,851	11,146	38,862	215,049
Nevada.....	1905	5	73,005	21	15,816	21	15,816	.....	.....	.....	.....	2,697	6,265	37,905
	1900	7	19,905	14	9,885	14	9,885	.....	.....	.....	.....	541	3,499	17,850
Washington.....	1905	57	1,953,760	674	419,382	672	419,088	.....	.....	2	294	116,748	270,062	1,090,909
	1900	40	806,885	455	245,762	448	244,286	1	600	6	876	36,938	110,598	583,857		
Oregon.....	1905	46	542,424	320	168,153	316	167,103	.....	.....	4	1,050	41,848	107,145	445,008
	1900	51	407,824	277	124,873	267	122,415	1	276	9	2,182	17,876	60,278	317,978		
California.....	1905	91	7,412,605	2,217	1,380,772	2,200	1,376,076	.....	.....	17	4,696	357,212	730,855	3,676,774
	1900	74	2,512,164	1,111	578,994	1,097	575,552	2	504	12	2,938	112,302	427,113	1,585,738		
Not distributed by states or divisions ² .	1905	3	225,283	60	45,467	59	45,342	.....	.....	1	125	10,306	32,021	93,750

¹ Includes only brick and tile. Pottery, terra cotta, and fire clay products are included in total "not distributed by states or divisions."

² Includes figures for 3 establishments (2 in Mississippi and 1 in Montana) manufacturing pottery, terra cotta, and fire clay products.

The figures shown in this table for Maine, Mississippi, Montana, New Hampshire, and Vermont for 1905 include only brick and tile; the statistics for pottery, terra cotta, and fire clay products appearing in the groups "not distributed by states" to avoid disclosing the operations of individual establishments.

The North Central division of states leads in the production of clay wares both in 1900 and 1905, producing 41.8 per cent of the total value for the United States at the former period and 45.2 per cent at the latter. Next in importance is the North Atlantic division, which contributed 39.3 per cent of the total value for the country in 1900 and 34.7 per cent in 1905. The combined products of these two divisions amounted in 1905 to

\$108,100,822, or 79.9 per cent of the total of all clay products. Of the remainder, the South Central division produced 7 per cent, the South Atlantic division 7.4 per cent, and the Western division 5.7 per cent. Although the relative positions of the different divisions have not changed since 1900, the North and South Atlantic divisions each report a smaller per cent of the total product in 1905 than in 1900, which would indicate a more rapid growth of the industry throughout the states to the west.

Table 3 shows for states and territories the value of products, their relative rank, and the per cent of the total each produced at the censuses of 1890, 1900, and 1905.

TABLE 3.—CLAY PRODUCTS—RANK OF STATES BY VALUE OF PRODUCTS, WITH PER CENT OF TOTAL: 1890 TO 1905.

STATE OR TERRITORY.	1905			1900			1890		
	Rank.	Value of products.	Per cent of total.	Rank.	Value of products.	Per cent of total.	Rank.	Value of products.	Per cent of total.
United States.....	.....	\$135,352,854	100.0	.....	\$95,533,862	100.0	.....	\$89,827,785	100.0
Ohio.....	1	25,686,870	19.0	1	16,480,812	17.3	2	10,860,938	12.1
Pennsylvania.....	2	18,039,187	13.3	2	14,081,844	14.7	1	11,143,668	12.4
New Jersey.....	3	13,547,183	10.0	3	10,786,673	11.3	4	7,991,611	8.9
Illinois.....	4	10,802,721	8.0	5	7,224,915	7.6	5	7,956,082	8.9
New York.....	5	10,719,042	7.9	4	8,073,769	8.5	3	8,806,273	9.8
Indiana.....	6	6,461,377	4.8	6	4,222,529	4.4	7	3,142,454	3.5
Missouri.....	7	5,682,267	4.2	7	3,650,400	3.8	6	4,782,619	5.3
California.....	8	3,676,774	2.7	12	1,585,738	1.7	9	2,206,914	2.5
Iowa.....	9	3,440,225	2.6	8	2,224,920	2.3	14	1,775,165	2.0
West Virginia.....	10	2,156,485	1.6	13	1,541,239	1.6	35	304,865	0.3
Kentucky.....	11	2,133,291	1.6	14	1,355,094	1.4	22	1,206,181	1.3
Kansas.....	12	2,068,735	1.6	25	753,411	0.8	28	690,574	0.8
Maryland.....	13	1,948,801	1.4	11	1,679,166	1.8	12	1,985,828	2.2
Michigan.....	14	1,940,907	1.4	15	1,280,590	1.3	17	1,407,957	1.6
Massachusetts.....	15	1,888,965	1.4	9	2,181,510	2.3	8	2,819,760	3.1
Virginia.....	16	1,880,901	1.4	19	1,089,399	1.1	18	1,361,438	1.5
Wisconsin.....	17	1,863,085	1.4	10	1,810,206	1.9	13	1,785,442	2.0
Georgia.....	18	1,817,299	1.4	16	1,259,577	1.3	16	1,412,792	1.6
Minnesota.....	19	1,789,861	1.3	17	1,217,743	1.3	19	1,331,339	1.5
Texas.....	20	1,631,391	1.2	18	1,212,266	1.3	20	1,311,270	1.5
Colorado.....	21	1,603,837	1.2	21	1,071,388	1.1	10	2,238,618	2.5
Tennessee.....	22	1,409,673	1.0	22	944,610	1.0	21	1,277,397	1.4
Connecticut.....	23	1,225,327	0.9	20	1,074,202	1.1	24	863,040	1.0
Nebraska.....	24	1,131,913	0.8	24	841,305	0.9	11	2,173,632	2.4
Alabama.....	25	1,120,259	0.8	23	883,129	0.9	27	802,331	0.9
Washington.....	26	1,090,909	0.8	29	583,857	0.6	15	1,529,479	1.7
Louisiana.....	27	1,003,477	0.7	31	553,465	0.6	34	336,495	0.4
Arkansas.....	28	812,676	0.6	34	336,899	0.4	29	520,734	0.6
North Carolina.....	29	802,145	0.6	26	725,016	0.8	32	346,270	0.4
Mississippi.....	30	782,842	0.6	32	540,725	0.6	33	339,939	0.4
Maine.....	31	420,111	0.3	27	662,235	0.7	26	804,074	0.9
South Carolina.....	32	697,047	0.5	28	596,693	0.6	36	279,889	0.3
New Hampshire.....	33	529,008	0.4	30	570,287	0.6	25	835,156	0.9
Oregon.....	34	445,008	0.3	35	317,978	0.3	30	461,648	0.5
Utah.....	35	422,691	0.3	37	215,049	0.2	31	421,658	0.5
District of Columbia.....	36	297,201	0.2	33	481,145	0.5	23	961,587	1.1
Oklahoma.....	37	261,438	0.2	40	149,712	0.2	44	11,500	(³)
Montana.....	38	178,675	0.1	36	314,340	0.3	38	238,610	0.3
Indian Territory.....	39	248,931	0.2	47	35,075	(³)	40	119,260	0.1
Florida.....	40	236,634	0.2	41	137,953	0.1	37	268,534	0.3
Delaware.....	41	205,236	0.2	38	167,692	0.2	42	45,775	(³)
North Dakota.....	42	170,257	0.1	39	158,874	0.2	41	119,039	(³)
Vermont.....	43	104,235	0.1	42	131,525	0.1	45	9,800	(³)
Idaho.....	44	112,770	0.1	45	46,609	0.1	39	134,650	0.1
South Dakota.....	45	83,756	0.1	46	46,150	(³)			
New Mexico.....	46	80,910	0.1	43	108,090	0.1			
Arizona.....	47	45,881	(³)	44	101,758	0.1	46	4,300	(³)
Nevada.....	48	37,905	(³)	48	17,850	(³)			
Wyoming.....	49	17,195	(³)	49	8,450	(³)	43	25,900	(³)
Not distributed by states.....		579,540	0.4					315,300	0.4

¹ Includes products of 2 establishments in Rhode Island in 1905 and 1 in 1900.

² Figures shown are for brick and tile, although in determining the rank of states, pottery, terra cotta, fire and other clay products were taken into account.

³ Less than one-tenth of 1 per cent.

⁴ In 1905, includes pottery, terra cotta, and fire clay products for establishments in Maine, Mississippi, Montana, New Hampshire, and Vermont; in 1890, brick and tile for establishments in Indian Territory and Rhode Island; and pottery, terra cotta, and fire clay products for establishments in Delaware, Florida, Nebraska, Oregon, Rhode Island, and Utah, to avoid disclosing individual operations.

Ohio not only continues to be the leading state in the value of clay products, but the state's proportion of the total for the United States has increased from 12.1 per cent in 1890 to 19 per cent in 1905. In 1905 its products were valued at \$25,686,870, or 19 per cent of the total for the country, as compared with \$16,480,812, or 17.3 per cent of the total, in 1900. From 1900 to 1905 it increased its production \$9,206,058, or 55.9 per cent, while the increase for the country as a whole was only 41.7 per cent.

In 1905 Pennsylvania retained second place, with products valued at \$18,039,187, or 13.3 per cent of the total for the country, an increase over 1900 of \$3,957,343, or 28.1 per cent. New Jersey was third with 10.1 per cent of the total product, and an increase of \$2,760,510, or 25.6 per cent. Illinois with a gain of 49.5 per cent, and producing 8 per cent of the total value of products, advanced from fifth rank in 1900 to fourth in 1905, displacing New York, which produced only 7.9 per cent of the total, and reported an increase of only 32.8 per cent.

In 1905 the proportion for the four states, Ohio, Pennsylvania, New Jersey, and Illinois, aggregate 50.3 per cent of the total value of all clay products manufactured in the United States. In 1905 compared with 1900 the percentages of increase for Ohio and Illinois were greater than that for the country as a whole, while those for New Jersey, New York, and Pennsylvania were considerably less.

Indiana and Missouri stood sixth and seventh, in the order named, both in 1905 and in 1900. California, twelfth in 1900, displaced Iowa from eighth rank in 1900 to ninth in 1905. The most noteworthy advance is that of Kansas from twenty-fifth rank in 1900 to twelfth in 1905, the increase for this state in value of

products being 177.2 per cent. Decreases were shown only for Arizona, the District of Columbia, Massachusetts, Montana, and New Mexico. The figures of the table indicate decreases also for Maine, New Hampshire, and Vermont, but from these figures for 1905, pottery, terra cotta, and fire clay products had to be excluded to avoid disclosing individual operations. If they had been included, these states would have shown increases.

Table 4 shows the total cost of materials used in the manufacture of clay products in 1900 and 1905.

TABLE 4.—Clay products—cost of materials used, with amount and per cent of increase: 1905 and 1900.

	1905		1900		INCREASE.	
	Cost.	Per cent of total.	Cost.	Per cent of total.	Amount.	Per cent.
Total.....	\$32,907,961	100.0	\$22,921,384	100.0	\$9,986,577	43.6
Clay.....	5,345,357	16.2	3,548,336	15.5	1,797,021	50.6
Fuel.....	20,147,612	61.2	12,633,680	55.1	7,513,932	59.5
Packing materials...	848,867	2.6	586,198	2.6	262,669	44.8
All other materials..	6,566,125	20.0	6,153,170	26.8	412,955	6.7

The cost of all materials in 1905 was \$32,907,961 as compared with \$22,921,384 in 1900, an increase of \$9,986,577, or 43.6 per cent. The cost of fuel was the largest item, amounting to \$20,147,612, or 61.2 per cent of the total, as against \$12,633,680, or 55.1 per cent of the total, in 1900. This is an increase of \$7,513,932, or 59.5 per cent. Clay was purchased to the amount of \$5,345,357, or 16.2 per cent of the total cost of materials, an increase of \$1,797,021 over 1900.

Table 5 is a comparative summary of the kind and value of the principal clay products for 1890, 1900, and 1905, with the amount and the per cent of increase.

TABLE 5.—CLAY PRODUCTS—COMPARATIVE SUMMARY, KIND AND VALUE OF PRODUCTS, WITH AMOUNT AND PER CENT OF INCREASE: 1890 TO 1905.

	DATE OF CENSUS.			INCREASE.		PER CENT OF INCREASE.	
	1905	1900	1890	1900 to 1905	1890 to 1900	1900 to 1905	1890 to 1900
Aggregate value.....	\$135,352,854	\$95,533,862	\$89,827,785	\$39,818,992	\$5,706,077	41.7	6.4
Brick, tile, and terra cotta:							
Total value.....	109,518,341	78,336,447	77,488,493	31,181,894	847,954	39.8	1.1
Common brick.....	51,239,871	39,674,749	48,810,271	11,565,122	19,135,522	29.2	-118.7
Red front brick (both pressed and wire cut).....	3,904,847	2,537,912	5,973,902	1,366,935	13,435,990	53.9	157.5
Fancy or ornamental brick.....	3,430,664	2,632,580	187,920	798,084	2,444,660	30.3	1,300.9
Enameled brick.....	445,985	329,969	(2)	116,016	.....	35.2	.....
Vitrified paving brick.....	7,256,088	4,828,456	982,440	2,427,632	3,846,016	50.3	391.5
Fire brick.....	11,752,625	8,636,562	6,318,770	3,116,063	2,317,792	36.1	36.7
Electrical conduits.....	602,682	685,273	53,500	182,591	631,773	112.1	1,180.9
Sewer pipe.....	8,416,009	4,560,334	5,394,921	3,855,675	1,834,587	84.5	115.5
Drain tile.....	5,522,198	3,662,184	5,009,804	1,860,014	1,347,620	50.8	126.9
Fireproofing, including terra cotta, lumber, and hollow building tile or blocks.....	4,317,312	1,665,031	402,750	2,652,281	1,262,281	159.3	313.4
Roofing, flooring, and encaustic tile.....	2,725,717	1,276,300	795,958	1,449,417	480,342	113.6	60.3
Architectural terra cotta.....	3,792,763	2,027,532	1,431,228	1,765,231	596,304	87.1	41.7
All other brick, tile, and terra cotta products.....	* 6,111,580	5,819,565	2,127,029	292,015	3,692,536	5.0	173.6
Pottery products:							
Total value.....	25,834,513	17,197,415	12,339,292	8,637,098	4,858,123	50.2	39.4
Red earthenware.....	821,695	762,260	(2)	59,435	.....	7.8	.....
Stoneware.....	3,274,914	1,970,710	2,056,463	1,304,204	1,85,753	66.2	14.2
Yellow and Rockingham ware.....	206,607	159,553	439,553	47,054	1,280,000	29.5	163.7
C. C. or cream colored ware and white granite ware, including semivitrified porcelain ware.....	9,195,703	6,376,351	3,571,847	2,819,352	2,804,504	44.2	78.5
China (porcelain).....	3,370,627	1,255,978	460,334	2,114,649	795,644	168.4	172.8
Bone china, Delft, and Belleek ware.....	108,000	42,000	(2)	66,000	.....	157.1	.....
Sanitary ware, including porcelain bath tubs, laundry tubs, etc.	3,932,506	2,211,877	(2)	1,720,629	.....	77.8	.....
Porcelain electrical supplies.....	1,500,283	470,355	(2)	1,029,928	.....	219.0	.....
Porcelain doorknobs and hardware trimmings.....	78,596	126,861	(2)	148,265	.....	138.0	.....
All other pottery products.....	* 3,345,582	3,821,470	5,811,095	1475,888	1,989,625	112.5	134.2

¹ Decrease. ² Not reported separately in 1890. ³ Includes sand-lime brick to the value of \$698,003. ⁴ Includes art pottery and porcelain to the value of \$726,989.

The separation made in this table is between products used for building and construction and the characteristic products of pottery establishments. To the total increase of \$39,818,992 between 1900 and 1905 the coarser products, as brick, tile, terra cotta, etc., contributed \$31,181,894, or 78.3 per cent, and the pottery products \$8,637,098, or 21.7 per cent. In 1905 the coarser products showed an increase of 39.8 per cent over 1900, whereas in 1900 they showed an increase of only 1.1 per cent over 1890. The only item under this head with a diminution in value of products was electrical conduits, which showed a decrease of \$82,591, or 12.1 per cent.

There were increases of 29.2 and 53.9 per cent, respectively, in common and red front brick over the figures for 1900, when the census showed a marked decrease in these products as compared with 1890. But while there has been complete recovery and a positive advance in the production of common brick, the production of red front brick in 1905 was still below that in 1890.

Fancy and ornamental brick, enameled brick, vitrified paving brick, and fire brick all showed substantial increases over 1900, but the highest percentages were in such products as fireproofing and hollow building tile or blocks; roofing, flooring, and encaustic tile; and architectural terra cotta. Fireproofing and hollow building tile or blocks showed an increase in value of \$2,652,281, or 159.3 per cent. From 1890 to 1900 the increase was \$1,262,281, or 313.4 per cent. The production of roofing, flooring, and encaustic tile also showed the large increase of \$1,449,417, or 113.6 per cent, from 1900 to 1905, as compared with the much smaller one of \$480,342, or 60.3 per cent, between 1890 and 1900. The value of architectural terra cotta increased from \$2,027,532 in 1900 to \$3,792,763 in 1905, or 87.1 per cent, while the increase for the preceding decade was only 41.7 per cent.

The fact that fireproofing products, the principal materials used in buildings of fireproof construction, have more than doubled in value during the period from 1900 to 1905, is evidence of their rapidly increasing popularity.

The general increase in the production of the coarser wares extends also to sewer pipe, draintile, and all other products not classified, but peculiar to the brick, tile, and terra cotta industry. At the census of 1905 compared with that of 1900 sewer pipe increased \$3,855,675, or 84.5 per cent, as compared with a decrease of \$834,587, or 15.5 per cent, for the decade ending 1900. Draintile, which between 1890 and 1900 showed a decrease of \$1,347,620, or 26.9 per cent, was

credited in 1905 with an increase of \$1,860,014, or 50.8 per cent.

At the census of 1900 pottery products reported a gain of \$4,858,123, or 39.4 per cent, over 1890, while between 1900 and 1905 the increase was \$8,637,098, or 50.2 per cent. It has taken about fifteen years for the potteries to double the value of their products, but if the same activity that characterized the past five years obtains throughout the next five the potters of the country will have the satisfaction of seeing the value of their products more than double during a period of ten years.

In pottery products, as in brick, tile, terra cotta, etc., a general increase in the value of production is noted, though the greatest increase is shown in the higher grades. The only items showing a decreased production were porcelain doorknobs and hardware trimmings, which decreased \$48,265, or 38 per cent, and "all other pottery products," which decreased \$475,888, or 12.5 per cent.

The value of the china porcelain products more than doubled during the five years. From a total value of \$1,255,978 in 1900 it had grown to \$3,370,627 in 1905, an increase of \$2,114,649, or 168.4 per cent. Bone china, Delft, and Belleek ware also made a large gain—from \$42,000 in 1900 to \$108,000 in 1905, an increase of \$66,000, or 157.1 per cent. Porcelain electrical supplies, which were first separately classified in 1900, show an increase of \$1,029,928, or 219 per cent.

The growth in the production of sanitary ware is noteworthy, and the demand in foreign countries for such goods of American make is increasing. From 1900 to 1905 the increase in value of products was \$1,720,629, or 77.8 per cent. C. C., or cream colored ware, and white granite ware, including semivitreous ware, show a large gain since 1890, the increase amounting to \$2,819,352, or 44.2 per cent, as compared with one of \$2,804,504, or 78.5 per cent, for the decade ending 1900.

Stoneware, and yellow and Rockingham ware, which showed decreases between 1890 and 1900, made gratifying increases in 1905. However, the value of yellow and Rockingham ware produced in the latter year was still less than half what it was fifteen years before.

Notwithstanding the fact that in 1900 art pottery was separately reported to the value of \$629,402 it was not deemed advisable to continue the inquiry in 1905, since most of the art pottery is an earthenware product reported under several classifications and the value shown would be much less than the actual production.

Table 6 shows the average cost per ton for clays purchased in 1905, by states and territories.

TABLE 6.—CLAY PRODUCTS—AVERAGE COST PER TON OF CLAY PURCHASED, BY STATES AND TERRITORIES: 1905.

STATE OR TERRITORY.	CHINA.		BALL.		Stone-ware.	Slip.	Fire.	Pipe.	Terra-cotta.	Brick.	All other.
	Domestic.	Foreign.	Domestic.	Foreign.							
United States.....	\$9.72	\$12.82	\$5.74	\$9.76	\$1.55	\$7.21	\$1.18	\$0.98	\$1.27	\$0.55	\$1.52
Alabama.....					1.45	12.32	.79			1.00	.20
Arkansas.....					.80	14.44				.36	
California.....		29.16		36.50	2.95	28.54	2.43	2.31	.67	1.77	1.27
Colorado.....	10.00				2.39	10.00	1.95	1.00	1.17	.68	6.00
Connecticut.....	5.02						.76			.64	
Delaware.....										.89	
Florida.....										.14	
Georgia.....	16.50				1.78	18.00	.52	1.87	1.50	.55	.78
Illinois.....	12.64		6.10	16.66	1.23	6.25	1.01		1.67	.43	1.30
Indian Territory.....										1.00	
Indiana.....	12.62	11.92	4.47	11.68	1.27	5.17	.90	.37	2.00	.36	2.95
Iowa.....				40.00	.91	11.57				.53	.75
Kansas.....					2.29	9.56	3.50			.33	
Kentucky.....	4.48		3.52		1.57	3.82	1.07	1.00		.72	1.00
Louisiana.....					1.50		3.57		1.33		1.27
Maine.....					2.03	7.50		1.40		.89	.93
Maryland.....	14.05	11.77		8.09	1.25	5.00	.75		1.46	.51	2.48
Massachusetts.....	11.09	17.20	11.47		2.71	5.69	2.81		2.32	.86	
Michigan.....							3.44			.23	.92
Minnesota.....				16.00	1.07	6.00				2.17	1.00
Mississippi.....						23.10				.81	1.05
Missouri.....	7.50	12.30	2.43		1.83	13.03	.92	.90	1.07	.87	.79
Montana.....										1.00	
Nebraska.....										1.10	
Nevada.....										1.00	
New Hampshire.....	13.75			11.70			2.00			.21	5.00
New Jersey.....	9.14	11.93	7.74	9.41	3.17	7.06	1.67		1.03	.37	1.40
New York.....	10.05	14.70	6.64	10.27	1.59	4.29	2.03		1.81	.88	1.01
North Carolina.....					1.99	10.00				.41	
Ohio.....	9.91	12.95	5.19	9.80	1.38	6.15	.64	.82	.63	.60	.93
Oklahoma.....										2.66	
Oregon.....		11.00			4.00		5.50			3.13	1.30
Pennsylvania.....	8.56	12.28	5.67	9.30	2.00	7.97	1.50	.65	1.13	.67	4.11
South Carolina.....						15.27				.96	
Tennessee.....			40.00		1.11	11.30	4.00			.63	1.00
Texas.....					.59	15.38	1.00			.42	2.00
Utah.....							1.82	2.00			
Vermont.....										1.00	
Virginia.....	5.25	11.00								1.27	
Washington.....					3.00	10.00	1.00		1.00	1.00	1.00
West Virginia.....	8.90	13.52	6.23	10.00	1.09	12.69	3.87			.40	4.70
Wisconsin.....									1.50	.40	

Only a small proportion of the total quantity of clay used is purchased, the greater part being owned and mined by the establishments reporting. It will be observed that the prices for the higher grades differ greatly in the various states. This is probably due to

the physical properties of the clay, the conditions under which it is mined, and to the general conditions of demand, distance from market, competition, etc.

Table 7 is a statement of the average value of brick and other products, by states and territories, 1905.

TABLE 7.—BRICK AND OTHER PRODUCTS—AVERAGE VALUES, BY STATES AND TERRITORIES: 1905.

STATE OR TERRITORY.	Common brick.	Red front brick (both pressed and wire- cut).	Fancy or ornamen- tal brick.	Vitrified paving brick.	Enameled brick.	Sand-lime brick.	Fire brick.	Stoneware.	Fireproofing, including terra cotta, lumber, and hollow build- ing tile or blocks.
	Per 1,000.	Per 1,000.	Per 1,000.	Per 1,000.	Per 1,000.	Per 1,000.	Per 1,000.	Per gallon.	Per ton.
United States.....	\$5.90	\$9.90	\$14.82	\$10.14	\$35.91	\$7.95	\$17.33	\$0.05	\$4.74
Alabama.....	5.66	8.17	22.00	10.43	.....	8.82	13.29	.05	.....
Arizona.....	7.21	.....	.....	.....	.....	7.44	.....	.....	.....
Arkansas.....	7.17	6.85	.....	10.00	.....	7.87	12.75	.04	.....
California.....	6.68	12.77	46.97	35.00	.....	9.28	12.64	.08	7.19
Colorado.....	6.52	8.78	17.80	8.53	.....	17.33	17.50	.07	8.25
Connecticut.....	5.55	15.00	.....	14.00	.....	.....	21.90	.....	5.00
Delaware.....	8.06	12.51	.....	.....	.....	.....	.....	.....	.....
District of Columbia.....	7.58	15.00	8.50	.....	.....	.....	.....	.....	6.77
Florida.....	5.68	.....	.....	.....	.....	6.45	.....	.....	.....
Georgia.....	5.09	9.57	8.00	9.00	.....	.....	14.11	.06	6.00
Idaho.....	7.54	15.00	25.00	25.00	.....	.....	30.00	.....	.....
Illinois.....	5.20	9.90	14.27	9.28	65.32	.....	13.65	.04	5.18
Indian Territory.....	5.91	11.33	10.50	14.00	.....	.....	13.48	.....	.....
Indiana.....	5.94	7.39	7.56	10.77	.....	5.18	11.01	.04	4.81
Iowa.....	6.89	9.25	13.15	9.26	12.00	.....	15.00	.06	4.97
Kansas.....	4.35	8.76	8.93	7.79	.....	7.00	9.47	.07	7.00
Kentucky.....	5.61	8.04	10.00	12.03	21.68	7.00	18.15	.06	.....
Louisiana.....	6.34	15.00	9.27	10.00	.....	.....	.....	.....	.....
Maine.....	6.25	8.23	.....	.....	.....	.....	.....	.....	.....
Maryland.....	6.55	15.94	29.07	14.00	.....	8.00	17.59	.....	6.00
Massachusetts.....	6.24	8.15	50.33	.....	.....	.....	23.65	.06	5.00
Michigan.....	5.74	8.13	9.69	12.27	20.00	5.26	.....	.....	9.01
Minnesota.....	6.00	7.52	13.78	10.00	.....	8.00	.....	.04	4.00
Mississippi.....	6.56	13.09	.....	.....	.....	8.70	.....	.06	5.00
Missouri.....	5.92	11.33	34.55	10.25	34.23	.....	16.48	.05	7.76
Montana.....	8.00	20.00	35.00	18.00	.....	.....	35.00	.....	.....
Nebraska.....	6.98	10.07	15.66	8.53	.....	.....	.....	.....	.....
Nevada.....	9.12	.....	.....	.....	.....	.....	.....	.....	.....
New Hampshire.....	6.41	11.00	.....	.....	.....	.....	.....	.....	.....
New Jersey.....	5.83	14.46	17.89	13.39	54.77	8.75	22.84	.06	4.83
New Mexico.....	6.36	7.65	.....	.....	.....	.....	.....	.....	.....
New York.....	5.52	9.72	17.00	12.72	.....	5.96	28.26	.09	6.10
North Carolina.....	5.56	7.86	12.50	.....	.....	10.00	11.99	.06	.....
North Dakota.....	7.43	17.71	147.13	.....	.....	.....	.....	.....	7.50
Ohio.....	5.82	8.79	11.44	10.09	12.00	7.29	14.71	.04	3.77
Oklahoma.....	7.16	8.91	.....	9.26	.....	.....	.....	.....	.....
Oregon.....	7.74	29.93	30.00	15.00	.....	.....	20.90	.06	15.00
Pennsylvania.....	6.17	9.44	12.35	10.27	21.11	8.90	17.63	.06	4.06
South Carolina.....	5.14	10.19	10.00	.....	.....	8.00	10.63	.06	.....
South Dakota.....	8.10	.....	.....	35.00	.....	7.00	.....	.....	6.19
Tennessee.....	5.92	8.35	16.20	10.00	.....	12.50	10.92	.05	.....
Texas.....	5.87	9.48	13.19	10.00	.....	6.50	17.14	.06	.....
Utah.....	6.28	9.75	8.50	.....	.....	.....	30.26	.....	6.00
Vermont.....	5.70	.....	.....	.....	.....	.....	.....	.....	.....
Virginia.....	6.33	10.49	20.27	10.00	.....	10.08	15.37	.....	.....
Washington.....	7.39	13.19	18.37	16.23	.....	28.71	29.56	.08	10.00
West Virginia.....	6.23	8.33	.....	14.45	.....	.....	9.33	.05	.....
Wisconsin.....	6.62	8.55	7.71	.....	.....	7.00	.....	.....	5.99
Wyoming.....	8.34	.....	10.50	.....	.....	.....	.....	.....	.....

The average value per thousand for common brick for the United States was \$5.90 in 1905 and \$5.18 in 1900. The value ranged from \$9.12 per thousand in Nevada, to \$4.35 per thousand in Kansas where natural gas is extensively used as fuel. Though there has been a general rise in the value of brick throughout the country, the value in Kansas during the five-year period fell 79 cents per thousand, or 15.4 per cent. The only other divisions in which the price of brick declined were the District of Columbia, Indian Territory, and New Mexico. Illinois, New York, Ohio, and New Jersey were among the fifteen states in which the average

value of common brick was slightly below that for the United States.

Red front brick ranged from \$29.93 per thousand in Oregon to \$6.85 in Arkansas, while the average value for the United States was \$9.90, as against \$8.98 in 1900. Sand-lime brick varied from \$28.71 per thousand in Washington, to \$5.18 in Indiana, the average for the United States being \$7.95. The average price per gallon for stoneware was 5 cents. The highest average price, 9 cents, was reported by New York. In Arkansas, Illinois, Indiana, and Minnesota, the average value fell to 4 cents.

Table 8 shows the value of earthenware, china, brick, and tile imported and entered for consumption in the United States from 1867 to 1904, inclusive.

TABLE 8.—Value of earthenware, china, brick, and tile imported and entered for consumption in the United States: 1867 to 1904.¹

YEAR ENDING—	Total.	Brown earthen and common stone ware.	China and porcelain, not decorated.	China and porcelain, decorated.	Other earthen, stone, or crockery ware, glazed, etc.	Brick, fire brick, and tile.
June 30:						
1867.....	\$5,187,859	\$48,618	\$418,493	\$439,824	\$4,280,924	.....
1868.....	4,005,681	47,208	309,960	403,555	3,244,958	.....
1869.....	4,459,549	34,260	400,894	555,425	3,468,970	.....
1870.....	4,460,228	47,457	420,442	530,805	3,461,524	.....
1871.....	4,632,355	96,695	391,374	571,032	3,573,254	.....
1872.....	5,308,893	127,346	470,749	814,134	3,896,664	.....
1873.....	5,751,944	115,253	479,617	867,206	4,289,868	.....
1874.....	4,831,724	70,544	397,730	676,656	3,686,794	.....
1875.....	4,441,216	68,501	436,883	654,965	3,280,867	.....
1876.....	4,112,956	36,744	409,539	718,156	2,948,517	.....
1877.....	3,772,059	30,403	326,956	668,514	2,746,186	.....
1878.....	4,096,725	18,714	389,133	657,485	3,031,393	.....
1879.....	4,044,876	19,868	296,591	813,850	2,914,567	.....
1880.....	5,500,388	31,504	334,371	1,188,847	3,945,666	.....
1881.....	6,383,326	27,586	321,259	1,621,112	4,413,369	.....
1882.....	6,866,779	36,023	316,811	2,075,708	4,438,237	.....
1883.....	8,686,061	43,864	368,943	2,587,545	5,685,709	.....
1884.....	4,363,497	50,172	982,499	2,664,231	(?)	\$666,595
1885.....	4,666,175	44,701	823,334	2,834,718	.....	963,422

¹United States Geological Survey, "Mineral Resources of the United States," 1904, page 898.

²Not separately classified after 1883.

TABLE 8.—Value of earthenware, china, brick, and tile imported and entered for consumption in the United States: 1867 to 1904—Con.

YEAR ENDING—	Total.	Brown earthen and common stone ware.	China and porcelain, not decorated.	China and porcelain, decorated.	Other earthen, stone, or crockery ware, glazed, etc.	Brick, fire brick, and tile.
December 31:						
1886.....	\$5,204,704	\$37,820	\$865,446	\$3,350,145	.....	\$951,293
1887.....	5,907,642	43,079	967,694	3,888,509	.....	1,008,360
1888.....	6,204,324	55,558	1,054,854	4,207,598	.....	886,314
1889.....	6,565,562	48,824	1,148,026	4,580,321	.....	788,391
1890.....	5,157,776	56,730	974,627	3,562,851	.....	563,568
1891.....	8,663,450	99,983	1,921,643	6,288,088	.....	353,736
1892.....	9,021,509	63,003	2,022,814	6,555,172	.....	380,520
1893.....	8,375,896	57,017	1,732,481	6,248,255	.....	338,143
1894.....	7,180,343	47,114	1,550,950	5,392,648	.....	189,631
1895.....	10,445,795	61,424	2,117,425	8,055,473	.....	211,473
1896.....	9,530,524	41,585	1,511,542	7,729,942	.....	247,455
1897.....	8,642,175	32,227	1,406,019	7,057,261	.....	146,668
1898.....	7,079,934	54,672	1,002,729	5,905,209	.....	117,324
1899.....	8,041,631	40,164	1,125,892	6,740,884	.....	134,691
1900.....	8,912,073	65,214	1,059,152	7,617,756	.....	169,951
1901.....	9,681,411	51,551	1,094,078	8,385,514	.....	150,268
1902.....	9,806,271	58,926	1,016,010	8,495,598	.....	235,737
1903.....	11,456,290	95,890	1,234,223	9,897,588	.....	228,589
1904.....	11,488,411	81,951	1,329,146	9,859,144	.....	218,170

³Including Rockingham ware.

Table 9 shows the exports of clay wares from 1895 to 1904, inclusive.

TABLE 9.—EXPORTS OF CLAY WARES OF DOMESTIC MANUFACTURE FROM THE UNITED STATES: 1895 TO 1904.¹

YEAR. ²	Aggregate value.	BRICK.			POTTERY.		
		Total value.	Building.		Total value.	Earthen and stone ware (value).	China (value).
			Quantity, by thousands.	Value.			
1895.....	\$262,758	\$123,461	4,757	\$34,732	\$88,729	\$114,425	\$24,872
1896.....	304,738	135,395	5,258	32,759	102,636	144,641	24,702
1897.....	348,612	141,009	4,606	30,383	110,626	177,320	30,283
1898.....	430,770	178,949	4,708	32,317	146,632	251,821	39,052
1899.....	803,890	292,158	9,872	77,783	214,375	511,732	43,807
1900.....	1,281,831	723,037	12,526	128,800	594,237	489,942	68,852
1901.....	1,068,409	541,589	9,072	74,210	467,379	526,820	49,863
1902.....	1,106,080	501,434	3,995	31,304	470,130	604,646	49,306
1903.....	1,028,278	439,277	8,783	63,774	375,503	589,001	61,312
1904.....	1,379,124	587,385	25,012	179,866	407,519	697,381	94,358

¹United States Geological Survey, "Mineral Resources of the United States," 1904, page 899.

²Years ending December 31.

BRICK AND TILE.

The detailed summary for the brick and tile branch of the industry is found in Table 17, following the text of this report. Illinois led in value of products, reporting 10.6 per cent of the total for the country. In 1900 Illinois held third rank among the states, while Pennsylvania, which was first, reported 10.2 per cent of the total for the country. As in 1900, New York occupied second place, with 10.4 per cent of the total for the country in 1905, and Ohio fourth, with 10 per cent; while Indiana, Iowa, and Missouri followed in the order named.

Table 10 shows for 1900 and 1905 the kind and cost of materials used in brick and tile manufacture, the percentage each is of the total cost, and the amount and per cent of increase.

TABLE 10.—Brick and tile—cost of materials, with amount and per cent of increase: 1905 and 1900.¹

	1905		1900		INCREASE.	
	Cost.	Per cent of total.	Cost.	Per cent of total.	Amount.	Per cent.
Total.....	\$16,316,499	100.0	\$11,006,148	100.0	\$5,310,351	48.2
Clay, purchased.....	476,288	2.9	335,668	3.1	140,620	41.9
Coal used as an ingredient.....	141,301	0.9	131,658	1.2	9,643	7.3
Sand.....	247,241	1.5	189,803	1.7	57,438	30.3
Manganese.....	50,880	0.3	19,004	0.2	31,876	167.7
Salt.....	10,503	0.1	6,460	0.1	4,043	62.6
Fuel.....	13,583,834	83.2	8,774,852	79.7	4,808,982	54.8
Rent of power and heat.....	45,126	0.3	9,768	0.1	35,358	362.0
Mill supplies.....	565,427	3.5	411,935	3.7	153,492	37.3
All other materials.....	657,234	4.0	521,055	4.7	136,179	26.1
Freight.....	538,665	3.3	605,945	5.5	\$67,280	\$11.1

¹Exclusive of the statistics of establishments engaged primarily in the manufacture of pottery, terra cotta, and fire clay products, that also produced brick and tile.

²Decrease.

The cost of clay and sand covers only that actually purchased and includes neither royalties, which are reported under miscellaneous expenses, nor its cost where pits are owned by the plants reporting, the cost of mining clay and sand being included in the amount paid wage-earners. A similar method was followed also in reporting the cost of fuel, where wood, coal, or natural gas was obtained on premises owned or controlled by the establishments reporting.

The total cost of materials for 1905 was \$16,316,499, as compared with \$11,006,148 in 1900, an increase of \$5,310,351, or 48.2 per cent. The only item showing a decrease was that of freight, which item represents only the amount not included in the cost of materials. The great amount of fuel used for power, for artificial drying, and for burning the products easily makes this the material of greatest cost, amounting to \$13,583,834, or 83.2 per cent of the total.

Table 11 shows for 1900 and 1905 the value of the brick and tile products of brickyards alone, by kind,

and the percentage each kind is of the brick and tile products, as well as of the total clay products.

TABLE 11.—Brick and tile—kind and value of products: 1905 and 1900.¹

	1905			1900		
	Value.	Per cent of total.	Per cent of total of all clay products. ²	Value.	Per cent of total.	Per cent of total of all clay products. ³
Total.....	\$71,152,062	100.0	52.6	\$51,270,476	100.0	53.7
Common brick.....	50,438,486	70.9	37.3	38,650,478	75.4	40.5
Red front brick.....	3,432,815	4.8	2.5	2,397,171	4.7	2.5
Sand-lime brick.....	659,157	0.9	0.5	(⁴)	.....	.....
Fancy colored front brick (all except red front).....	2,693,842	3.8	2.0	1,601,441	3.1	1.7
Ornamental shaped brick (all not plain rectangular).....	487,589	0.7	0.4	429,588	0.9	0.5
Vitrified paving brick.....	6,510,134	9.2	4.8	3,857,179	7.5	4.0
Drain tile.....	4,990,672	7.0	3.7	3,195,434	6.2	3.3
All other products.....	1,939,367	2.7	1.4	1,139,185	2.2	1.2

¹Exclusive of the statistics of establishments engaged primarily in the manufacture of pottery, terra cotta, and fire clay products, that also produced brick and tile.

²Total value of all clay products, \$135,352,854.

³Total value of all clay products, \$95,533,862.

⁴Not reported separately in 1900.

Though the volume of production of brickyards increased in value \$19,881,586, or 38.8 per cent, during the five-year period, their percentage of the total value of all clay products suffered a slight decrease. This was due largely to the falling off in the production of common brick, which in 1900 contributed 40.5 per cent to the total value of all clay products, and in 1905 only 37.3 per cent. More ornamental materials are largely displacing common brick from use on the exterior of buildings, and modern methods of iron and steel construction from their use in the interior. Clay products, such as terra cotta, hollow building tile and blocks, etc., were not called for on the schedule for brickyards but on that for pottery, terra cotta, and fire clay products. Had this class of building materials which are not strictly pottery products been included with those shown in Table 11, for brickyards, the value of the products of that branch of the industry would have been greatly increased.

POTTERY, TERRA COTTA, AND FIRE CLAY PRODUCTS.

The detailed summary, by states and territories, of the manufacture of pottery, terra cotta, and fire clay products in 1905 is found in Table 18, following the text of this report. Ohio led in value of products, with \$18,550,840, or 28.9 per cent of the total for the country. This state likewise led in 1900, with 26.8 per cent of the total. At both censuses New Jersey stood second, with 18.3 per cent of the total in 1905 and 20.2 per cent in 1900; and Pennsylvania, third, with 16.8 per cent in 1905, and 18.4 per cent in 1900. New York held fourth place in 1905, with 5.1 per cent of the total, while Illinois, Missouri, and Indiana followed in the order named.

Table 12 shows for 1900 and 1905 the kinds and cost of materials used in the manufacture of pottery, terra cotta, and fire clay products, the percentage each is of the total cost, and the amount and percentage of increase.

TABLE 12.—POTTERY, TERRA COTTA, AND FIRE CLAY PRODUCTS—COST OF MATERIALS, WITH AMOUNT AND PER CENT OF INCREASE: 1905 AND 1900.

	1905		1900		INCREASE.	
	Cost.	Per cent of total.	Cost.	Per cent of total.	Amount.	Per cent.
Total.....	\$16,591,462	100.0	\$11,915,236	100.0	\$4,676,226	39.2
Clay purchased, total.....	4,869,069	29.3	3,212,668	27.0	1,656,401	51.6
China clay (domestic).....	453,556	2.7	390,804	3.3	62,752	16.1
China clay (foreign).....	354,931	2.1	171,790	1.4	183,141	106.6
Ball clay (domestic).....	124,034	0.8	113,954	1.0	10,080	8.8
Ball clay (foreign).....	205,737	1.2	116,629	1.0	89,108	76.4
Stoneware clay.....	255,913	1.5	171,161	1.4	84,752	49.5
Slip clay.....	35,112	0.2	17,830	0.2	17,282	96.9
Fire clay.....	2,151,847	13.0	1,554,228	13.0	597,619	38.5
Pipe clay.....	173,638	1.0	150,489	1.3	23,149	15.4
Terra cotta clay.....	174,621	1.1	133,339	1.1	41,282	31.0
Brick clay.....	166,748	1.0	191,918	1.6	25,170	15.1
All other clay.....	772,932	4.7	200,526	1.7	572,406	285.5
Sand.....	99,608	0.6	92,017	0.8	7,591	8.2
Flint (quartz).....	400,549	2.4	325,434	2.7	75,115	23.1
Feldspar.....	438,585	2.6	265,231	2.2	173,354	65.4
Plaster.....	184,240	1.1	120,545	1.0	63,695	52.8
Salt.....	31,611	0.2	24,756	0.2	6,855	27.7
Manganese.....	11,825	0.1	25,914	0.2	14,089	154.4
Iron.....	11,216	0.1	13,184	0.1	1,968	14.9
Lime.....	9,612	0.1	(?)			
Liquid and coin gold.....	225,624	1.4	117,422	1.0	108,202	92.1
Oxide of lead, zinc, and cobalt.....	370,941	2.2	225,099	1.9	145,842	64.8
Packing materials.....	848,867	5.1	586,198	4.9	262,669	44.8
Fuel.....	6,563,778	39.6	3,858,828	32.4	2,704,950	70.1
Rent of power and heat.....	30,018	0.2	11,889	0.1	18,129	152.5
Mill supplies.....	405,998	2.4	346,613	2.9	59,385	17.1
All other materials.....	1,593,785	9.6	1,473,414	12.4	120,371	8.2
Freight.....	496,136	3.0	1,216,024	10.2	1,719,888	159.2

¹ Decrease.

² Not reported separately in 1900.

The total cost of the materials for this branch of clay manufacture was \$16,591,462 in 1905, as compared with \$11,915,236 in 1900, an increase of \$4,676,226, or 39.2 per cent. The only items showing decreases are brick clay, manganese, iron, and freight on materials used. Fuel constituted by far the largest item of expense, \$6,563,778, or 39.6 per cent of the total, as compared with \$3,858,828, or 32.4 per cent in 1900, an increase of \$2,704,950, or 70.1 per cent. In 1905

foreign clay was purchased costing \$560,668, an increase of \$272,249 or 94.4 per cent. The cost of fire clay, which formed 44.2 per cent of all purchased clays in 1905 and 48.4 per cent in 1900, increased \$597,619, or 38.5 per cent.

Table 13 shows the kind and value of pottery, terra cotta, and fire clay products for 1900 and 1905, with the percentage each value is of the total, and also of the total value of all clay products.

TABLE 13.—POTTERY, TERRA COTTA, AND FIRE CLAY PRODUCTS—KIND AND VALUE OF PRODUCTS, WITH PER CENT OF TOTAL VALUE: 1905 AND 1900.

	1905			1900		
	Value.	Per cent of total.	Per cent of total value of all clay products. ¹	Value.	Per cent of total.	Per cent of total value of all clay products. ²
Aggregate.....	\$64,200,792	100.0	47.4	\$44,263,386	100.0	46.3
Pottery products:						
Total value.....	25,831,013	40.2	19.1	17,222,040	38.9	18.0
Red earthenware.....	818,195	1.3	0.6	762,260	1.7	0.8
Stoneware.....	3,274,914	5.1	2.4	1,970,710	4.4	2.1
Yellow and Rockingham ware.....	206,607	0.3	0.1	159,553	0.4	0.2
C. C. or cream colored ware and white granite ware including semivitreous porcelain ware.....	9,195,703	14.3	6.8	6,376,351	14.4	6.7
China (porcelain).....	3,370,627	5.3	2.5	1,255,978	2.8	1.3
Bone china, Delft, and Belleek ware.....	108,000	0.2	0.1	42,000	0.1	(³)
Sanitary ware, including solid porcelain bath tubs, laundry tubs, etc.....	3,932,506	6.1	2.9	2,211,877	5.0	2.3
Porcelain electrical supplies.....	1,500,283	2.3	1.1	470,355	1.1	0.5
Porcelain doorknobs and hardware trimmings.....	78,596	0.1	0.1	126,861	0.3	0.1
All other pottery products.....	3,345,582	5.2	2.5	3,846,095	8.7	4.0
Terra cotta, fire, and other clay products.....	37,854,744	59.0	27.9	26,420,354	59.7	27.7
All other products.....	515,035	0.8	0.4	620,992	1.4	0.6

¹ Total value of all clay products, \$135,352, 854.

² Total value of all clay products, \$95,533,862.

³ Less than one-tenth of 1 per cent.

A comparison of this table with Table 11, which deals with the brick and tile branch of the industry, shows that, while the decrease in the relative importance of brick and tile products was due largely to the falling off in one item, common brick, the corresponding increase shown in Table 13 is more complex, made up of fluctuations in many different items. China (porcelain) advanced the most in relative importance and those products classed as "all other pottery" noticeably declined.

Table 14 is a comparative summary of the manufacture of pottery, terra cotta, and fire clay products for 1890, 1900, and 1905, at the two great pottery centers of the United States, Trenton, N. J., and East Liverpool, Ohio. In making this comparison only those establishments within the corporate limits of these two cities are considered, rather than those located in what are indefinitely called the "East Liverpool district" and the "Trenton district."

TABLE 14.—POTTERY, TERRA COTTA, AND FIRE CLAY PRODUCTS—COMPARATIVE SUMMARY, TRENTON, N. J., AND EAST LIVERPOOL, OHIO: 1905, 1900, AND 1890.

	TRENTON.			EAST LIVERPOOL.		
	1905	1900	1890	1905	1900	1890
Number of establishments.....	40	29	32	34	30	23
Capital:						
Total.....	\$8,488,854	\$7,096,775	\$4,875,507	\$5,959,688	\$4,292,845	\$2,127,281
Value of plants.....	\$4,806,411	\$4,928,952	\$2,728,913	\$3,336,259	\$2,281,164	\$1,219,543
Cash and sundries.....	\$3,682,443	\$2,167,823	\$2,146,594	\$2,623,429	\$2,011,681	\$907,738
Proprietors and firm members.....	24	34	34	12	17	17
Salaries officials, clerks, etc.:						
Number.....	281	198	1 160	251	251	1 93
Salaries.....	\$395,545	\$260,011	\$203,669	\$323,199	\$265,107	\$89,844
Wage-earners, including pieceworkers, and total wages:						
Average number.....	4,571	4,289	3,935	4,859	3,908	2,062
Wages.....	\$2,473,690	\$2,343,754	\$2,144,032	\$2,480,720	\$1,835,110	\$977,069
Miscellaneous expenses.....	\$527,361	\$385,759	\$434,354	\$519,158	\$187,839	\$157,421
Materials used:						
Total cost.....	\$1,446,360	\$1,196,291	\$1,198,090	\$1,567,189	\$1,168,982	\$669,357
Clay.....	\$302,749	\$292,500	\$285,262	\$356,015	\$218,786	\$171,954
Fuel.....	\$471,540	\$287,108	\$261,580	\$335,910	\$209,213	\$130,448
Packing materials.....	\$125,884	\$128,769	\$176,374	\$210,367	\$158,990	\$93,043
Miscellaneous.....	\$546,187	\$487,914	\$474,874	\$664,897	\$581,993	\$273,912
Products:						
Total value.....	\$5,882,701	\$4,785,142	\$4,631,202	\$5,373,852	\$4,105,200	\$2,137,063
Yellow and Rockingham ware.....				\$77,258	\$98,034	
C. C. or cream colored ware, white granite ware, and semivitreous porcelain ware.....	\$1,290,768	\$1,565,357		\$4,344,468	\$3,529,664	
China (porcelain).....	\$361,360	\$494,870		\$311,511	\$197,144	
Bone china, Delft, and Belleek ware.....	\$108,000	\$42,000				
Sanitary ware, including solid porcelain bath tubs, laundry tubs, etc.....	\$2,436,851	\$1,942,332				
Porcelain electrical supplies.....	\$326,524	\$154,807		\$407,627	\$142,447	
Porcelain doorknobs and hardware trimmings.....	\$16,141	\$44,500		\$9,000	\$46,333	
All other pottery products.....	\$1,080,511	\$453,899		\$111,337	\$51,211	
Terra cotta, fire, and other clay products.....	\$246,674	\$83,160		\$112,651	\$38,479	
All other products.....	\$15,872	\$4,217			\$1,888	
Machinery and kilns:						
Pottery—						
Disintegrators.....	83	60		90	77	
Agitators.....	82	70		71	73	
Slip pumps.....	84	69		69	65	
Lawn.....	61	48		58	44	
Clay presses—						
Iron.....	29	26		85	65	
Wood.....	50	39			3	
Pug mills—						
Regular.....	57	45		43	36	
Sagger.....	37	28		35	31	
Wad mills.....	37	31		35	32	
Jiggers.....	178	166		258	221	
All other machines.....	386	562		311	191	
Kilns—						
Up draft.....	172	152		201	169	
Down draft.....	45	33		32	10	
Muffle—						
Large.....	55	24		6		
Decorating.....	71	56		106	73	
All other kilns.....	4	4		5		
Terra cotta, tile and brick—						
Clay grinding machines—						
Disintegrators.....	2	4			3	
Dry pans.....	7	3		4		
All other.....	1	2				
Clay tempering machines—						
Pug mills.....	1	5			1	
Wet pans.....	1	7		2	2	
Molding machines—						
Stiff mud.....	3				1	
Dry presses.....		12				
Shape brick power presses.....	3	2				
Hand presses.....	13	6				
Sewer pipe presses.....				2	2	
Kilns, down draft, round.....	11	11		17	17	
Dryers.....	3	2		4		
Idle machines.....	24	21		7		

¹ Includes proprietors and firm members, with their salaries; number only reported in 1900 and 1905.

Deducting the value of terra cotta, fire clay, and "all other products" from the total it is found that in 1905 these two pottery centers produced a value of

\$10,881,356, or 42.1 per cent of the total value of the pottery products of the United States shown in Table 16. In 1900 they produced a value of \$8,762,598, or

50.9 per cent of the total. While the value of their strictly pottery products thus increased \$2,118,758, or 24.2 per cent, during the five-year period, it is evident that these two centers are to some degree losing their preeminence in this industry, which is being built up rapidly in other parts of the country.

Owing to difference in the classification of products at the census of 1890 it is impossible to make a comparison of the various classes with that year.

In East Liverpool a greater number of wage-earners were employed per establishment and the amount paid for materials was larger, although the value of products reported was \$508,849 less, than for Trenton. The average production per kiln for Trenton was valued at \$16,432, as compared with \$14,643 for East Liverpool.

A comparison of Table 14 with Table 18 reveals the fact that in 1905 all the bone china, Delft, and Belleek ware reported for the United States was the product of Trenton. Formerly Belleek ware, as well as an extremely attractive variety of decorated bone china, was made in East Liverpool, but neither was reported from that city at the later census year. Belleek ware was also formerly manufactured at other places in America.

The much smaller amount spent for fuel in East Liverpool is due to the fact that natural gas is the only fuel employed.

Table 15 shows the kind and total value of the coarser products, including brick, tile, terra cotta, and fire clay products, by states and territories, for 1905. This table is a combination of the products that are common to both branches of the industry.

MANUFACTURES.

TABLE 15.—BRICK, TILE, TERRA COTTA, FIRE, AND OTHER CLAY PRODUCTS—SUMMARY OF KIND,

1	STATE OR TERRITORY.	Aggregate.	BRICK.							
			Total.		Common brick.		Red front brick (both pressed and wire cut).		Fancy or ornamental brick.	
			Thousands.	Value.	Thousands.	Value.	Thousands.	Value.	Thousands.	Value.
1	United States.....	\$109,518,341	10,853,689	\$79,524,911	8,683,897	\$51,239,871	394,582	\$3,904,847	231,560	\$3,430,664
2	Alabama.....	1,085,893	152,745	977,223	134,305	760,819	355	2,900	5	110
3	Arizona.....	45,881	6,280	45,881	3,680	26,530				
4	Arkansas.....	799,676	110,195	798,452	101,899	730,962	1,550	10,625		
5	California.....	3,629,864	305,768	2,399,761	262,108	1,751,030	13,238	169,112	3,127	146,876
6	Colorado.....	1,557,187	139,982	1,102,967	99,827	650,420	22,171	194,594	3,104	55,236
7	Connecticut ¹	1,130,257	186,675	1,118,447	179,175	995,147	2,500	37,500		
8	Delaware.....	205,236	23,970	198,636	22,735	183,186	1,235	15,450		
9	District of Columbia.....	284,601	24,489	185,748	24,414	184,948	25	375	50	425
10	Florida.....	236,634	40,312	233,322	34,712	197,222				
11	Georgia.....	1,792,822	264,187	1,423,380	247,978	1,263,158	7,368	70,494	90	720
12	Idaho.....	112,770	13,618	112,770	12,995	98,000	110	1,650	154	3,850
13	Illinois.....	9,937,261	1,157,468	6,922,327	990,362	5,147,959	36,690	363,280	14,535	207,466
14	Indian Territory.....	248,931	35,702	223,423	33,256	196,678	1,425	16,150	800	8,400
15	Indiana.....	5,698,096	414,745	2,818,051	308,133	1,831,601	29,493	217,912	617	4,967
16	Iowa.....	3,367,876	256,857	1,879,525	213,501	1,471,507	7,256	67,106	1,213	15,953
17	Kansas.....	2,048,235	333,724	1,880,159	215,651	938,858	13,211	115,697	10,856	96,985
18	Kentucky.....	1,979,881	187,545	1,596,009	134,725	756,103	9,832	79,078	5	50
19	Louisiana.....	1,002,773	149,846	963,823	145,496	922,573	150	2,250	4,100	38,000
20	Maine ²	420,111	65,522	415,606	62,552	391,166	2,970	24,440		
21	Maryland.....	1,550,101	180,720	1,431,200	159,467	1,044,651	2,285	36,423	1,802	52,379
22	Massachusetts.....	1,595,322	185,574	1,271,638	177,971	1,110,510	3,400	27,700	600	30,200
23	Michigan.....	1,900,718	255,408	1,500,881	238,141	1,366,405	3,498	28,436	160	1,550
24	Minnesota.....	1,542,228	187,262	1,187,195	173,153	1,039,712	2,710	20,389	6,139	84,594
25	Mississippi ²	782,842	116,173	773,299	114,372	750,406	1,646	21,544		
26	Missouri.....	5,653,797	376,955	3,195,667	257,500	1,524,049	22,655	256,728	6,243	215,711
27	Montana ²	177,675	17,479	154,675	16,855	134,835	20	400	1	140
28	Nebraska.....	1,131,913	149,638	1,128,076	132,000	921,114	2,590	26,080	8,018	125,582
29	Nevada.....	37,905	4,125	37,625	4,125	37,625				
30	New Hampshire.....	529,008	81,217	528,596	79,412	508,741	1,805	19,855		
31	New Jersey.....	7,084,559	392,143	3,490,753	303,117	1,766,460	28,726	415,441	18,002	322,113
32	New Mexico.....	80,910	11,890	80,910	7,740	49,230	4,140	31,680		
33	New York.....	9,350,948	1,284,952	7,791,254	1,226,501	6,765,209	8,779	85,290	16,831	286,200
34	North Carolina.....	795,718	122,650	691,808	120,349	608,573	350	2,750	150	1,875
35	North Dakota.....	170,257	20,679	169,897	19,199	142,646	1,472	26,074	8	1,177
36	Ohio.....	13,781,160	861,513	7,136,014	462,656	2,694,172	38,769	340,707	58,135	664,866
37	Oklahoma.....	261,438	34,441	250,821	31,541	225,866	1,100	9,800		
38	Oregon.....	417,528	35,710	309,027	33,714	260,839	424	12,690	550	16,500
39	Pennsylvania.....	16,713,606	1,405,080	14,140,733	809,154	4,993,194	71,514	675,039	54,627	675,108
40	South Carolina.....	684,847	126,602	671,182	122,460	629,201	1,050	10,700	20	200
41	South Dakota.....	83,756	10,243	82,685	8,433	68,335				
42	Tennessee.....	1,275,685	172,644	1,108,110	150,522	891,517	10,900	91,059	1,459	23,635
43	Texas.....	1,505,173	216,344	1,317,417	198,141	1,162,216	5,830	55,249	1,269	16,742
44	Utah.....	420,791	50,807	379,320	41,007	257,478	7,648	74,565	820	6,970
45	Vermont.....	104,235	17,588	100,235	17,588	100,235				
46	Virginia.....	1,830,901	240,406	1,822,016	202,458	1,281,163	15,200	160,460	13,501	273,631
47	Washington.....	1,050,971	87,955	790,470	73,765	545,101	3,332	43,965	1,436	26,378
48	West Virginia.....	1,046,891	99,402	977,552	53,330	332,434	600	5,000		
49	Wisconsin.....	1,850,158	230,407	1,538,477	220,607	1,461,292	4,470	38,210	2,330	17,975
50	Wyoming.....	17,195	1,855	17,195	1,055	8,795			800	8,400
51	Not distributed by states ³	505,125	6,207	154,673						

¹ Includes 2 establishments in Rhode Island.² Includes only brick and tile; terra cotta, fire and other clay products are shown in "all other states."³ Includes figures for the manufacture of any of the several classes of products shown in Table 15, where there were less than 3 establishments reporting.

BRICK—continued.													
Vitrified paving brick.		Fire brick.		All other brick.		Drain tile.	Sewer pipe.	Fireproofing, including terra cotta, lumber, and hollow building tile or blocks.	Architectural terra cotta.	Roofing, floor, and encaustic tile.	All other terra cotta, fire and other clay products.	All other products.	
Thousands.	Value.	Thousands.	Value.	Thousands.	Value.								
715,559	\$7,256,088	678,362	\$11,752,625	149,729	\$1,940,816	\$5,522,198	\$8,416,009	\$4,317,312	\$3,762,763	\$2,725,717	\$4,704,396	\$515,035	1
6,753	70,430	9,631	127,997	1,696	14,967	217	101,580				6,873		2
25	250	759	9,675	2,600	19,351								3
25	875	23,453	296,443	5,962	46,940	1,000					224		4
6,346	54,103	4,034	70,614	3,817	35,425	36,864	679,804	113,336	223,000	25,250	151,749	110	5
3,000	42,000	2,000	43,800	4,500	78,000	9,604	306,386	3,300			130,175	4,755	6
													7
						6,600		6,500			5,230	75	8
						3,400	30,440	61,913			3,100		9
7,000	63,000	1,701	24,008	5,600	36,100	2,797					515		10
				50	2,000	7,000	174,000	18,000	102,398	59,984	8,060		11
300	7,500	59	1,770										12
101,617	942,766	12,941	176,700	1,323	84,156	1,042,056	391,453	348,053	804,554	241,563	166,162	21,093	13
50	700	46	620	125	875						25,508		14
47,608	512,529	15,374	169,192	13,520	82,150	1,235,585	257,618	576,903	38,000	483,213	287,526	1,200	15
34,177	316,409	10	150	700	8,400	1,299,766	94,200	92,001			2,034	350	16
90,162	702,277	74	701	3,770	25,641	9,858	98,915	3,998	500	32,000	22,815		17
3,729	44,867	36,617	664,619	2,637	51,292	29,624	118,458			214,124	21,666		18
100	1,000					300					38,650		19
340	4,760	16,513	290,482	313	2,505	3,900					605		20
						3,090		14,621	34,840		34,800	31,550	21
		3,603	103,228					92,385	10,846	89,543	130,310	600	22
4,185	51,340			9,424	53,150	221,502	165,420	10,150			2,765		23
200	2,000			5,060	40,500	18,112	285,616	49,580			1,725		24
50,528	518,137	38,834	640,133	155	1,349	7,102		100			2,341		25
				1,195	40,909	84,563	792,710	192,222	185,623	64,539	905,830	232,643	26
100	1,800	500	17,500				14,000				9,000		27
1,530	13,050			5,500	42,250	150					3,687		28
											280		29
3,223	43,100	31,057	709,396	8,018	234,175	39,967	20,352	1,279,121	1,216,400	245,518	723,064	69,384	30
											412		31
13,208	167,961	16,274	459,917	3,299	26,677	115,532	143,738	267,680	815,893	48,665	159,141	9,045	32
		301	3,610										

Table 16 shows the kind and value of pottery products, by states and territories for 1905. The total value here reported is slightly in excess of that shown

in Table 18 because of the necessity of including red earthenware, manufactured in brickyards, having a value of \$3,500.

TABLE 16.—POTTERY PRODUCTS—KIND AND VALUE, BY STATES AND TERRITORIES: 1905.

STATE OR TERRITORY.	Total.	Red earthenware.	Stoneware.	C. C. ware and white granite ware, including semivitreous porcelain ware.	China (porcelain).	Bone china, Delft, and Belleek ware.	Sanitary ware, including solid porcelain bath tubs, laundry tubs, etc.	All other pottery products.
United States.....	\$25,834,513	\$821,695	\$3,274,914	\$9,195,703	\$3,370,627	\$108,000	\$3,932,506	\$5,131,068
Alabama.....	34,366		32,854					1,512
Arkansas.....	13,000		13,000					
California.....	46,910	24,133	7,777				15,000	
Colorado.....	46,650		26,500					20,150
Connecticut.....	95,075	43,500						51,575
District of Columbia.....	12,600	12,600						
Georgia.....	24,477	5,151	19,320					6
Illinois.....	865,460	16,850	723,971					124,639
Indiana.....	763,281	2,700	71,501	211,417			415,613	62,050
Iowa.....	72,349	9,200	63,149					
Kansas.....	40,500		40,500					
Kentucky.....	153,410	24,000	129,410					
Louisiana.....	704							
Maryland.....	398,700	12,700		166,000				220,000
Massachusetts.....	293,643	181,771	36,980	66,000	5,000			3,892
Michigan.....	40,189	20,600						19,589
Minnesota.....	247,633		241,107					6,526
Missouri.....	28,470	8,340	20,130					
New Jersey.....	6,462,624	30,634	58,819	1,290,768	361,360	108,000	3,006,406	1,606,637
New York.....	1,368,094	31,275	48,748	195,675	499,485		46,804	546,107
North Carolina.....	6,427	40	6,347					40
Ohio.....	11,905,710	183,236	1,040,378	6,167,494	2,279,374		197,225	2,038,003
Oregon.....	27,480	4,700	22,500					280
Pennsylvania.....	1,325,581	136,532	338,156	547,798	30,000		86,058	187,037
South Carolina.....	12,200		11,500					700
Tennessee.....	133,988	2,000	131,988					
Texas.....	125,218	3,452	121,766					
Utah.....	1,900	1,900						
Virginia.....	50,000							50,000
Washington.....	39,938	1,750	38,188					
West Virginia.....	1,109,594		16,850	550,551	195,408		165,400	181,385
Wisconsin.....	12,927	12,927						
All other states ²	75,415	51,000	13,475					10,940

¹Includes red earthenware to the value of \$3,500 made in brickyards, and distributed as follows: Kentucky, \$1,000; Montana, \$1,000; Ohio, \$1,500.

²Includes establishments distributed as follows: Maine, 2; Mississippi, 2; Montana, 1; New Hampshire, 2; Vermont, 1.

HISTORICAL AND DESCRIPTIVE.¹

BRICK AND TILE.

The manufacture of brick goes back to prehistoric times. Ruins of brick buildings have been found dating from 4000 B. C. The brick of many different shapes found by archeologists on the site of ancient Babylon, the enameled or glazed brick found of the period of Nebuchadnezzar, the burned brick used in the construction of the Great Wall of China, and the red, yellow, and blue brick discovered among the architectural decorations of the Egyptians, all bear witness to the skill of the brickmakers of the early ages. Unlike the modern product, these early bricks were large and cumbersome and far from uniform in size and shape. Probably not until the fourth century of the Christian era did they assume a size anywhere near that of the brick now in use, and not until much later did they become uniform in size.

In ancient Babylonia brick was the only building material available. Owing to the scarcity of fuel, they

were generally unburned. The clay would be mixed with chopped grass or hay and allowed to dry in the sun for several months. In Egypt stone quarries were abundant and therefore the use of brick was limited. The Greeks also had an abundant supply of building stone and with them bricks found little favor. Next to the Babylonians, among the great nations of antiquity, the Romans made most use of brick. Their favorite mode of construction was a wall of concrete faced with brick. The nations of northern Europe learned brickmaking from the Romans.

In the Middle Ages, with the rise of Gothic architecture, the use of brick greatly declined. It was not until the reign of Queen Elizabeth that the manufacture again flourished in England, and not until the year 1625 that bricks began to be made uniform in size and shape.

In this country brick were probably first burned in the colony of Virginia as early as 1612. In New England brick and tile making seems to have been

¹For much of the data used in the preparation of this report, acknowledgment is made to the following: "Pottery and porcelain of the United States," by Dr. F. A. Barber. "A practical treatise on the manufacture of bricks, tiles, terra cotta, etc." by Mr. Charles T. Davis. "Brick," monthly trade journal published in Chicago, Ill., by the Kenfield Publishing Company. Reports of Mr. F. T. Fitzpatrick, consulting architect of the International Society of State and Municipal Building Commissioners and Inspectors.

followed as an independent calling about the year 1647. Though the product was of good quality the industry did not thrive, as money was scarce and timber plentiful, and it was not until after the Revolutionary War that homemade bricks came into general use. With increasing prosperity the desire and necessity for more substantial structures arose. The growth of the industry from year to year naturally provided a stimulus for the invention of machinery that would produce better brick, new shapes, and different sizes; and in turn these new inventions contributed to further the growth of the industry. The earliest record of a patent issued by the United States Patent Office for brickmaking is dated May 15, 1800, and was for a brick and tile machine invented by G. Hadfield, residence not recorded. Other patents issued about that time were one to E. Miller, July 17, 1802, for a brick machine; one to N. and P. W. Miller, January 5, 1804, for a brick and tile machine; one to W. Hodgson, Richmond, Va., May 22, 1805, for an apparatus for making tile, brick, etc.; and one to J. F. Gould, Newburyport, Mass., March 1, 1806, for a brick machine. The first patent granted for a brick-kiln was issued to H. Read, of Kensington, Pa., June 17, 1840; and the first for a brick dryer, to S. M. Parish, of Baldwinsville, N. Y., August 16, 1864.

Although much the same process for making brick and tile has been used for ages, the evolution of the industry through the use of improved methods and machinery has brought about a great change in the character of the product. It is a long stride from the use of hand pick and shovel to steam shovel in uncovering the clay bed; from the old-fashioned ring pit to the machine that grinds, tempers, and molds; from the use of a hand mold to the machine with a capacity of 100,000 bricks per day; from the open air system, or a weather beaten drying shed, to the utilization of artificial heat for drying; from the temporary to the patented continuous kilns; and from the poorly made product of years ago to the firm, straight-edged, and otherwise well finished product of to-day. Of the \$119,956,959 capital invested in this industry, the machinery, tools, and implements represent \$33,295,324, or 27.8 per cent, an increase in five years of \$16,045,486, or 93 per cent.

By reference to Table 15, which shows the total number and value of all kinds of brick made by the two branches of the industry, classified respectively as "brickyards" and "potteries," it is found that almost eleven billion brick were made in 1905, having a value of \$79,524,911, nearly ten times the total value of all clay products reported at the census of 1850. This value was nearly six times that of all clay products in 1860, more than twice that of 1870, and nearly twice that of 1880. It exceeded by \$4,416,715 the total value of all the earthenware, china, brick, and tile imported and entered for con-

sumption in the United States for the eight years beginning 1897 and ending 1904.

Common brick.—Enormous quantities of common brick are being manufactured in all sections of the country. Surface clays are generally used, and more attention is given to the volume than to the color and general qualities of the product, as the price is low and the brick used mostly in ordinary wall construction and foundation work. The quality of the brick, however, largely determines the price, and it appears that common brick made in brickyards averaged \$5.90 per thousand, while that made in potteries averaged \$6.05. The quantity made by establishments under the latter classification was not, however, sufficient to change the average value per thousand for the United States, which was \$5.90 in 1905, as compared with \$5.18 in 1900. New York, Illinois, Pennsylvania, Ohio, and Indiana led in the production of common brick in the order named.

Sand-lime brick.—The sand-lime brick industry has passed the experimental stage, and though still in its infancy there is every reason to believe that it will eventually rank among the foremost of the country.

The successful manufacture of sand-lime brick in foreign countries appears to antedate that in this country by several years. According to United States Consul-General Mason, at Berlin, the discovery that freshly pressed bricks of sand and lime could be hardened in a few hours by heat and pressure of steam was made in Potsdam, Germany, about 1880. Plants on a large scale were subsequently constructed, and the industry extended throughout Germany and Great Britain.

In the United States the industry has grown from one plant, established in Michigan City, Ind., in 1901, to 50 establishments in 1905. In some instances these brick were made in establishments having clay products as their chief output, while in others they were products of plants exclusively confined to the manufacture of sand-lime brick. As this product was not reported at the census of 1900, comparisons can not be made.

In 1905 the total production of sand-lime brick was 87,778 thousand brick, valued at \$698,003, an average of \$7.95 per thousand, or \$2.05 above the average price of common brick for the United States. The establishments reporting this product were not confined to any particular region, but scattered through 25 states. Michigan led with 6 plants; Pennsylvania and Virginia reported 5 each; California, 4; Indiana and New York, 3 each; Alabama, Arkansas, Colorado, Florida, and Washington, 2 each; and Arizona, Kansas, Kentucky, Maryland, Minnesota, Mississippi, New Jersey, North Carolina, Ohio, South Carolina, South Dakota, Tennessee, Texas, and Wisconsin, 1 each.

The color of sand-lime brick is usually gray, although a comparatively pure quartz will produce a

brick almost white. By the addition of mineral oxide almost any color can be obtained. The weather and fire resisting properties of the brick compare favorably with those of other building material, as is shown by the following observations and experiments of Prof. S. V. Peppel:

Resistance to weather.—The resistance of sand-lime brick to weather is shown by its behavior in buildings which have been erected in severe climates and have shown no signs of disintegration in a number of years. The writer has observed the condition of a house built in Michigan City, Ind., early in the winter of 1901. This house was inspected late that winter, again in 1902, and again late in the winter of 1903, and no signs of weakness or attack due to the action of frost could be detected. There are buildings in northern Germany which have been standing eight or ten years and which show no signs of disintegration. Severe freezing tests have been applied to sand-lime brick by the Ohio geological survey and no evidence of weakness has resulted. The experience of Prof. Ira Woolson, of Columbia University, in testing commercial samples, has confirmed the work of the writer. The freezing tests which were applied were very severe. Blocks were saturated with water, then frozen rapidly by artificial means, then removed from the freezing can and immediately plunged into warm water, and as soon as completely thawed out they were at once introduced into the freezing can again. This was repeated as many as twenty times. The bricks were then dried, and their crushing strength was compared with that of duplicates which had been manufactured at the same time and had not been frozen or otherwise exposed to the weather. In every case, except when the bricks contained considerable quantities of clay, there was practically no falling off in the crushing strength. From the foregoing it is evident that, if properly manufactured, sand-lime brick is not at all susceptible to the ravages of frost and moisture.

Fire resisting properties.—Numerous tests have been made to determine the behavior of sand-lime bricks under the action of fire and water. In every case they have come out with a favorable record. The result may be summed up in the following statement: The application of great heat, followed by sudden quenching with water, destroys to some extent the bond on the surface and to a little depth beneath, but leaves the brick safe and intact. There was seldom any cracking or breaking of the brick, and the softening did not seem to penetrate the brick to any great extent. This is perfectly natural, since the brick are largely made of quartz, which is a poor conductor of heat.

Red front brick.—In the production of red front brick great care is exercised in the selection of raw materials and in the process of manufacture. The clay must be well tempered; the brick molded free from flaws or sand cracks; the method of drying be more complete than for common brick; and the repressing and subsequent drying, setting in kiln, and burning, skillfully and systematically managed. This additional attention necessarily increases the cost of production and the selling price, the latter averaging \$9.90 per thousand for the United States. Every state reported the manufacture of red front brick except Florida, Nevada, South Dakota, Vermont, Wyoming and the territory of Arizona. The state of Pennsylvania ranks first in value of product, New Jersey second, Illinois third, Ohio fourth, and Missouri fifth.

Fancy and ornamental brick.—Fancy colored and ornamental brick are primarily pressed brick. The different shades of color in the former are produced

by the addition of artificial coloring materials or by the manipulation of the kiln fires, while the distinguishing feature of ornamental bricks are the designs in relief or depression upon the surface to be exposed, in addition to a variety of shapes and sizes not found in ordinary pressed brick.

The average value per thousand in 1905 was \$14.82, ranging from \$147.13 in North Dakota to \$7.56 in Indiana. This wide difference for the various states can be attributed largely to the fact that the greater part of these bricks were made to supply special orders, very few plants carrying them in stock. Pennsylvania, Ohio, New Jersey, New York, and Virginia led in value of products, in the order named.

Paving brick.—In Holland, brick have been used to pave both roads and city streets since the seventeenth century, and are said to have been used for pavements in Japan for more than a hundred years. In the United States the first brick pavement on a roadway was laid at Charleston, W. Va., in 1870, and in 1873 the city adopted it for certain streets. This example was followed by many cities of the central west, but Philadelphia, in 1887, was the first large city to use brick for paving. The first patent on brick for pavements was granted R. Wright, of Philadelphia, Pa., December 17, 1867.

In his work, "Clays of the United States," Prof. Heinrich Ries says:

Most of the bricks of this class are made from fine grained ferruginous shales, these being found to yield the best results. In some cases a certain quantity of low grade fire clay is added—in fact, during the early stages of the industry, fire clays alone were considered necessary. The stiff mud method is now preferred by most paving brick manufacturers on account of its greater capacity.

The great increase in the production of vitrified paving brick is sufficient evidence of the growing demand for its use, and of the high state of perfection attained in its manufacture. In value of products, Ohio ranks first, Illinois second, Pennsylvania third, Kansas fourth, and West Virginia fifth. These five states produced 70.4 per cent of the entire value of the product of the thirty-two states engaged in the manufacture. The average value per thousand for the United States was \$10.14, the value in different states varying from \$35 in California and South Dakota to \$7.79 in Kansas.

Fire brick.—As the name implies, fire brick are used where intense heat must be withstood, as in cupolas, blast and glass furnaces, coke ovens, locomotive fire boxes, etc. The utility of the appliances just mentioned depends largely, if not altogether, on construction out of materials which will stand intense heat without fusing, cracking, or yielding in any way. In value of products Pennsylvania leads. Ohio is second in rank, New Jersey third, Kentucky fourth, and Missouri fifth. These five states produced 81.6 per cent of the total for the country. The average value per thousand for the United States was \$17.32, ranging from \$35 in Montana to \$9.33 in West Virginia.

A new fire brick made from ashes has been produced by a Michigan firm. The ashes are united by a powerful binder, molded, and the product conveyed straight to the drying room. It is claimed that the brick are ready for laying five days after manufacture; that they have been tested in fire and water with satisfactory results; and, further, that the product is two-fifths lighter than terra cotta, and yet stands considerable crushing force.

Enameled brick.—The value of enameled brick showed an increase of 35.2 per cent during the half decade. These bricks are ornamental, and in addition to being used for external decoration in the construction of buildings, are extensively used for sanitary purposes, their glazed and vitreous surfaces rendering them waterproof and easy to clean. As the surface of the brick to be enameled must be smooth and free from sand, pressed and fire brick are most often used. New Jersey leads in value of products. Illinois ranks second, Pennsylvania third, and Kentucky fourth. Missouri, Iowa, Ohio, and Michigan follow in the order named. Only these eight states reported enameled brick as a part of their products, the industry being comparatively new in the United States.

Hollow building tile and blocks, and fireproof brick.—On December 9, 1856, a patent was issued to M. and J. H. Buck and F. A. Cushman, of Lebanon, N. H., for a machine for pressing hollow building brick or building tile. This industry, though yet in its infancy, is rapidly growing in importance, as the product is essential to the construction of modern fireproof buildings. No separate classification has yet been made of this product, which is included with fireproofing and terra cotta lumber.

Possibly nothing has contributed more to the demand for burnt clay products, and brought more clearly to the attention of the public their value as a fire retardant, than the recent great fires in Baltimore, Rochester, and San Francisco. Without considering, however, these occasional catastrophes, it is estimated that the United States yearly sustains a fire loss of \$250,000,000, a sum almost double the combined value of all clay products manufactured in this country during the same time and nearly three times the total value of all the brick, fireproofing, terra cotta lumber, hollow building blocks or tile, and roofing, floor, and encaustic tile. With such an enormous annual property loss, and with the thinning out of the forests of the country, it is reasonable to believe that a change in building methods is imminent, and that the new era of construction will be of immeasurable benefit to those engaged in the manufacture of burnt clay building materials.

It is claimed that the annual fire loss in this country during the past five years amounted to about \$2.50 per capita, as against only 33 cents per capita in the larger European countries. This unsatisfactory showing for

the United States has resulted in a growing demand for a fireproof brick that can be used in the construction of moderate priced dwellings, and several large plants are now making a specialty of such an article. In this connection it is interesting to note that in 1807 a patent was granted by the United States Patent Office to E. Jenks, of Canaan, Conn., for a "fireproof brick machine." It is more than probable, however, that this machine was a contrivance for making fire brick rather than fireproof brick for building purposes, as a patent for making fire brick was issued to the same person on April 17 of the same year. Some time afterwards, in 1823, a patent for making fireproof brick was issued to T. Caldwell, of Philadelphia, Pennsylvania.

In an article in "Brick" for July, 1906, Mr. George E. Walsh, in referring to fireproof brick, says:

The bricks are burned at a temperature so high that a modern conflagration could not materially injure them. Architects have learned to depend upon them, and experience has demonstrated their value as a fire retardant. A further improvement in this direction is needed in the manufacture of fireproof bricks with ornamental facings. The ordinary fireproof brick is too often an ugly thing. It does not look well in solid walls, and as a consequence architects will not order it except for factories, warehouses, and similar buildings, where no attempt at beauty is desirable. * * *

In our large cities brick buildings must continue to be built to conform to the building laws, but in the country and in small villages and towns frame buildings must be eventually superseded by the brick, stone, and concrete houses. This is imperative, both as a matter of protection from fire losses and as a result of the increasing cost of lumber.

It is estimated by Mr. F. W. Fitzpatrick, of the International Society of State and Municipal Building Commissioners and Inspectors, that of the 14,000,000 or more buildings in this country not more than 4,000 are moderately fireproof and not more than 20 can be called anywhere near absolutely fireproof.

Drain tile.—The manufacture of drain tile also dates back to early ages, and many instances of its general use by the ancients have been found. That it was used, probably in a crude form, by the early settlers of this country can not be doubted, as patents were issued for its improved manufacture in the year 1800. On account of the various sizes of drain tile manufactured, it was found impossible to establish a unit of measure that would be of any practical value in determining the quantity made.

The four states, Iowa, Indiana, Ohio, and Illinois, produced 86 per cent of the total value of all drain tile, as compared with 87 per cent in 1900. The change in rank of these states since 1900 is noteworthy. Iowa, which was fourth in rank in 1900, now occupies first place, with 23.5 per cent of the total value of all drain tile manufactured in the country, changing places with Illinois, with 18.9 per cent of the total product in 1905. Indiana, with 22.4 per

cent of the total product, changed places with Ohio, with 21.3 per cent. In 1905 compared with 1900 there was an increase of 50.8 per cent in the total value of this product.

Machinery.—An interesting feature of the statistics of the manufacture of brick and tile in Table 17 is the number and kinds of machines and kilns. The grinding and the tempering machines reported separately are of course detached, the combination machines being included under the head of molding machines. There were 3,263 grinding machines. Of these, disintegrators were most numerous, although the number in use decreased 502, while the number of dry pans increased 406. Machines used in tempering the clay numbered 3,927. Ring pits decreased 556 and wet pans 34, while pug mills increased 288.

Of molding machines, the soft mud type was still in most general use in 1905, although showing a decrease of 302 during the five years, while the stiff mud type increased 286. The number of dry presses increased 99. Shape brick power presses, hand presses, sewer pipe presses, and tile machines showed great decreases. All other molding machines, consisting largely of combination brick and tile machines and of hand molds, showed an increase of 2,227. Apparently the use of mold sanders has decreased, there being 918 less in use in 1905 than in 1900.

At the census of 1905 only the number of dryers using artificial heat were tabulated, whereas at previous censuses racks and pallets and open air drying sheds were counted. Of the 1,110 dryers reported, 654 were classified as steam, 176 hot air, 122 waste heat, and 158 direct heat and other kinds. Pennsylvania led in the number of steam dryers, followed by Ohio, Georgia, Iowa, Indiana, and Illinois. The greatest number of hot air dryers was reported by Pennsylvania, followed by Illinois, Missouri, Ohio, and Indiana. Ohio led in waste dryers, followed by Illinois and Pennsylvania; and Kansas in the use of gas dryers, having almost twice the total of the other five divisions reporting—Indiana, Indian Territory, Iowa, Pennsylvania, and West Virginia. In the use of direct heat Illinois and Kansas led, each reporting the same number.

Kilns.—Of the 17,124 kilns in operation during the year covered by this report, 4,208 were clamps, 4,332 round down draft, 1,936 rectangular, 40 muffle, 254 continuous, and 6,354 "all other," including temporary kilns.

POTTERY.

The following brief outline of the history of the industry in the United States begins with the early struggles of the colonists, rather than with the crude but interesting efforts of the native tribes and prehistoric races.

In his work on American pottery Prof. E. A. Barber says:

The potter's art was probably first practiced in this country by the earlier emigrants in Virginia. Numerous small potteries sprang up to supply the modest needs of the simple-minded inhabitants, which furnished coarse earthenware utensils for culinary and other purposes. * * *. Previous to 1649 there were a number of small potters in Virginia who carried on a thriving business in the communities in which they operated; and the first Dutch settlers in New York brought with them a practical knowledge of pottery, and are said to have made a ware equal in quality to that produced in the ancient town of Delft, hardly a white ware but such as could be produced from the natural clays which abounded in the country.

It is recorded that a white ware was produced at a pottery erected in Burlington, N. J., in 1685 by the American agents of Dr. Daniel Coxe, of London. However, it is not likely that the ware made at this pottery was white, general opinion being that it was yellow and cream colored, as at that time no other ware was known except the porcelain which came from China, and was known as "china ware." Ordinary household pottery and ornamental vases for flowers were made in West Whiteland, Chester county, Pa., as early as 1753; a pottery and glass works was in operation in Germantown, New Quincy, Mass., in 1760; and a pottery in South Carolina in 1765. Cream colored ware, both plain and decorated in blue, was made in Philadelphia in 1770.

It appears however, that the potteries established before the Revolutionary War did not meet with marked success, and that this industry, like the manufacture of brick, did not assume commercial importance until after that war, when a period of new economic and industrial life began. About this time many enterprises were launched, including a number of potteries. About 1780 a stoneware pottery was established in Norwalk, Conn.; in 1791 John Curtis was making a good quality of pottery in Philadelphia; in 1793 John and William Norton established in Bennington, Vt., a pottery for the manufacture of red earthenware; and in 1808 the Columbian Pottery was making queensware in Philadelphia.

Philadelphia appears to have been the center of the pottery industry about this time, and it was in this city at the first exhibit of the Franklin Institute in 1824 that Mr. Abraham Miller, the son of Andrew Miller, who conducted a pottery in Philadelphia previous to 1791, showed some specimens of his art that were commended by the judges as being equal, if not superior, to imported articles of like description. His exhibit included "red and black glazed teapots, coffeepots, and other articles of the same description; also a sample of platinated or luster pitchers, with a specimen of porcelain and white ware." It is said that some excellent porcelain was produced by Mr. Miller, but that little attempt was made to develop it along commer-

cial lines, probably because of foreign competition, the tariff not having at that time been adjusted for the full protection of home industries.

In 1825 the Jersey Porcelain and Earthenware Company of Jersey City was incorporated, and the following year was awarded a silver medal at the Franklin Institute, Philadelphia, for the manufacture of "the best china from American materials."

To Mr. William E. Tucker, of Philadelphia, probably belongs the credit of being the first potter to supply the home market with porcelain. In 1825, after several years of experimenting with American clays, he established a pottery in Philadelphia "for the manufacture of a full line of goods." He seems to have met with many disheartening troubles, as shown in a paper prepared in 1868 by his brother, Mr. Thomas Tucker, for the Pennsylvania Historical Society. "He burned kiln after kiln, with very poor success. The glazing would crack, and the body would blister, and, besides, we discovered we had a man who placed the ware in the kiln who was employed by some interested parties in England to impede our success. Most of the handles were found in the bottom of the saggers after the kilns were burned. We could not account for it until a deaf and dumb man in our employment detected him running his knife around each handle as he placed them in the kiln. At another time every piece of the china had to be broken before it could be taken out of the seggar. We always washed the round O's, the article in which the china was placed in the kiln, with silex; but this man had washed them with feldspar, which, of course, melted and fastened every article to the bottom."

The wares produced by this pottery were of sufficient excellence to attract the attention of the English potters. Gen. Hector Tyndale gives the following description: "The products were white and decorated table and tea services, and decorative wares. The body was very good, being hard, dense, tough, and translucent, quite vitreous, with sharp and clear ring, and withstanding great and rapid changes of temperature. In appearance it somewhat resembled the French (Limoges) porcelain of that day, and in durability and use, that of Berlin, and quite equal to either. The glaze was good, and well adapted to receive colors." The pottery, however, was not a success from a financial standpoint, and in a few years ceased operations.

Among the other potteries erected about this time should be mentioned Nash's in Utica, N. Y., established 1819; Perrine's stoneware works in Baltimore, Md., 1827; John Hancock's yellow ware factory in South Amboy, N. J., 1828; Lewis's queensware and china pottery in Louisville, Ky., 1829; and Homer

& Shirley's flintware works in New Brunswick, N. J., 1831.

In 1830 an appeal for aid was made to the Government. Greater protection for the industry was asked, but in 1833 Congress passed a bill generally decreasing the tariff instead of increasing it. Although discouraging to the manufacturer of the higher grade wares, the industry on the whole did not suffer greatly, and the number of potteries steadily increased. In 1837 the Indiana Pottery Company was established in Troy, Ind., and two years subsequently, the first pottery in East Liverpool, Ohio, was erected by Mr. James Bennett, an Englishman, formerly at the Indiana pottery, and by Mr. Anthony Kearns, who furnished the capital. The first pottery was not built in Trenton, N. J., until 1852, when Messrs. Taylor, Speeler, and Bloor opened their establishment.

The influence of the tariff on the industry is thus explained by Mr. John Moses: "It was not, indeed, until the first real protection by the tariff ever accorded the potteries was enacted, as a war measure, that the American maker found himself able to enter the field against the English potter, especially in the two staple lines of *white granite* and *C. C.* The premium on gold, doubling, as it did, the increased duty, gave the potters the long needed opportunity, and new establishments sprang up in Trenton during the decade succeeding the war."¹

Prior to 1890 the clay working industries were not the subject of a special Census report, being included in general tables. At the census of 1850 no division of the value of products was attempted further than as follows: Brick, \$6,610,731; fire brick, \$12,009; earthenware, \$100,556; and pottery, \$1,466,063. In 1860 the value of products was reported as follows: Brick, \$10,253,734; fire brick, \$493,400; draitile, \$516,013; terra cotta ware, \$18,000; pottery and stoneware, \$2,463,681; and porcelain ware, \$243,000. In 1870 brick was reported to the value of \$29,028,359; drainpipe, \$1,294,256; and stone and earthenware, \$6,045,536. At the census of 1880 the value of clay products was reported as follows: Brick and tile, \$32,833,587; stone and earthenware, \$7,942,729; drain and sewer pipe, \$480,261; and terra cotta ware, \$554,343. At the census of 1890, for the first time, the report was commensurate with the importance of the industry.

Table 17 is a detailed summary of the statistics for the manufacture of brick and tile, for 1905, by states and territories.

Table 18 is a detailed summary for the manufacture of pottery, terra cotta, and fire clay products, for 1905, by states and territories.

¹One Hundred Years of American Commerce, page 290.

TABLE 17.—BRICK AND TILE—DETAILED SUMMARY,

	United States.	Alabama.	Arizona.	Arkansas.	California.	Colorado.	Connecticut. ¹
1 Number of establishments.....	4,634	63	5	55	69	62	34
2 Capital:							
3 Total.....	\$119,956,959	\$1,033,277	\$79,428	\$942,893	\$3,928,601	\$1,035,834	\$1,889,852
4 Land.....	\$27,752,437	\$123,348	\$9,900	\$144,526	\$1,213,960	\$227,080	\$514,455
5 Buildings.....	\$25,522,601	\$178,750	\$12,820	\$170,908	\$776,006	\$144,098	\$411,963
6 Machinery, tools, and implements.....	\$33,295,324	\$396,250	\$27,958	\$296,083	\$1,030,159	\$342,222	\$326,123
7 Cash and sundries.....	\$33,386,597	\$334,929	\$28,750	\$331,376	\$907,876	\$322,434	\$637,311
8 Proprietors and firm members.....	5,295	60	5	68	46	52	34
9 Salaried officials, clerks, etc.:							
10 Total number.....	3,690	74	.....	36	101	33	63
11 Total salaries.....	\$3,530,474	\$71,874	.....	\$37,525	\$101,948	\$39,400	\$64,429
12 Officers of corporations—							
13 Number.....	903	17	.....	8	30	5	8
14 Salaries.....	\$1,160,404	\$21,805	.....	\$10,350	\$35,915	\$8,600	\$14,300
15 General superintendents, managers, clerks, etc.—							
16 Total number.....	2,787	57	.....	28	71	28	55
17 Total salaries.....	\$2,370,070	\$50,069	.....	\$27,175	\$66,033	\$30,800	\$50,129
18 Men—							
19 Number.....	2,608	54	.....	27	73	26	50
20 Salaries.....	\$2,299,093	\$48,659	.....	\$26,575	\$64,553	\$29,900	\$47,979
21 Women—							
22 Number.....	179	3	.....	1	3	2	5
23 Salaries.....	\$70,977	\$1,410	.....	\$600	\$1,480	\$900	\$2,150
24 Wage-earners, including pieceworkers, and total wages:							
25 Greatest number employed at any one time during the year.....	115,090	1,758	52	1,045	2,174	927	1,802
26 Least number employed at any one time during the year.....	56,940	1,009	42	514	1,188	696	412
27 Average number.....	66,021	1,044	30	525	1,357	495	1,041
28 Total wages.....	\$28,646,005	\$301,224	\$20,380	\$186,308	\$825,346	\$322,235	\$475,205
29 Men 16 years and over—							
30 Average number.....	64,612	956	30	508	1,342	484	1,031
31 Wages.....	\$28,406,967	\$288,756	\$20,380	\$183,779	\$821,075	\$318,497	\$471,921
32 Women 16 years and over—							
33 Average number.....	36	2	.....	.....	.....	.....	6
34 Wages.....	\$8,656	\$220	.....	.....	.....	.....	\$1,934
35 Children under 16 years—							
36 Average number.....	1,373	86	.....	17	15	11	4
37 Wages.....	\$230,382	\$12,248	.....	\$2,529	\$4,271	\$3,738	\$1,350
38 Average number of wage-earners, including pieceworkers, employed during each month: ²							
39 Men 16 years and over—							
40 January.....	25,431	590	20	224	813	227	294
41 February.....	26,030	648	35	230	867	222	299
42 March.....	36,713	795	35	319	891	265	401
43 April.....	61,240	1,015	35	581	1,317	341	953
44 May.....	87,355	1,103	48	651	1,597	710	1,441
45 June.....	94,667	1,139	46	716	1,634	773	1,541
46 July.....	96,592	1,227	35	723	1,747	777	1,660
47 August.....	94,903	1,234	35	691	1,817	752	1,619
48 September.....	88,987	1,143	26	664	1,691	723	1,600
49 October.....	74,855	1,004	21	540	1,450	520	1,349
50 November.....	51,514	859	12	437	1,167	289	835
51 December.....	37,057	715	12	320	1,113	209	380
52 Children under 16 years—							
53 January.....	307	44	.....	4	8	8	3
54 February.....	345	54	.....	6	9	8	3
55 March.....	576	63	.....	8	12	8	3
56 April.....	1,328	107	.....	19	13	8	3
57 May.....	2,094	122	.....	27	18	13	4
58 June.....	2,314	127	.....	16	20	16	4
59 July.....	2,375	111	.....	27	23	15	5
60 August.....	2,292	104	.....	27	23	15	5
61 September.....	2,053	89	.....	27	19	13	5
62 October.....	1,543	103	.....	22	14	12	5
63 November.....	778	63	.....	14	11	8	4
64 December.....	471	45	.....	7	10	8	4
65 Miscellaneous expenses:							
66 Total.....	\$6,969,161	\$76,445	\$10,959	\$89,912	\$210,795	\$67,349	\$111,226
67 Rent of works.....	\$395,405	\$4,190	.....	\$962	\$2,910	\$8,335	\$8,335
68 Taxes.....	\$503,951	\$4,077	\$437	\$4,660	\$11,387	\$7,329	\$8,843
69 Rent of offices, interest, insurance, and all sundry expenses not hitherto included.....	\$5,775,935	\$65,162	\$10,522	\$82,240	\$179,080	\$50,560	\$94,048
70 Contract work.....	\$293,870	\$2,416	.....	\$2,050	\$17,589	\$6,550	.....
71 Materials used:							
72 Total cost.....	\$16,316,499	\$204,026	\$16,475	\$196,543	\$334,617	\$164,498	\$198,159
73 Clay purchased—							
74 Tons.....	985,749	4,135	.....	3,350	21,455	6,464	2,400
75 Cost.....	\$476,288	\$4,135	.....	\$1,190	\$19,930	\$5,149	\$1,160
76 Coal, used as an ingredient—							
77 Tons.....	76,418	.....	.....	1	126	6,781	4,561
78 Cost.....	\$141,301	.....	.....	\$2	\$630	\$11,626	\$8,684
79 Sand—							
80 Tons.....	322,824	4,981	.....	1,993	3,501	7,260	7,990
81 Cost.....	\$247,241	\$2,856	.....	\$1,928	\$9,168	\$3,853	\$4,050
82 Lime—							
83 Tons.....	13,141	294	460	650	728	60	.....
84 Cost.....	\$78,313	\$1,802	\$5,980	\$3,596	\$7,634	\$400	.....
85 Manganese—							
86 Pounds.....	4,555,625	.....	.....	.....	.....	155,025	.....
87 Cost.....	\$50,880	.....	.....	.....	.....	\$1,982	.....
88 Salt—							
89 Tons.....	2,348	1	.....	3	.....	15	.....
90 Cost.....	\$10,503	\$2	.....	\$31	.....	\$205	.....
91 Fuel.....	\$13,583,834	\$180,001	\$9,601	\$180,725	\$268,811	\$132,562	\$173,155
92 Rent of power and heat.....	\$45,126	.....	.....	\$910	\$9,526	\$1,856	\$350
93 Mill supplies.....	\$565,427	\$7,547	\$415	\$6,097	\$8,975	\$2,973	\$5,495
94 All other materials.....	\$578,921	\$6,169	\$419	\$1,795	\$4,325	\$2,794	\$4,160
95 Freight.....	\$538,065	\$1,514	.....	\$300	\$5,587	\$1,098	\$1,105

¹ Includes 2 establishments in Rhode Island.² The average number of women 16 years and over employed during each month is not shown in the table on account of the small number reported.

CLAY PRODUCTS.

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BY STATES AND TERRITORIES: 1905.

Delaware.	District of Columbia.	Florida.	Georgia.	Idaho.	Illinois.	Indian Territory.	Indiana.	Iowa.	Kansas.	
21	8	14	59	19	435	27	392	302	65	1
\$272,325	\$422,235	\$341,857	\$1,813,942	\$91,257	\$12,988,263	\$410,536	\$5,448,696	\$4,800,594	\$3,473,415	2
\$28,105	\$133,750	\$30,300	\$457,417	\$15,000	\$2,620,265	\$11,850	\$909,382	\$806,217	\$541,689	3
\$43,725	\$51,200	\$99,455	\$206,266	\$15,960	\$3,541,648	\$110,781	\$1,414,403	\$1,430,012	\$448,119	4
\$51,450	\$76,452	\$138,116	\$638,356	\$24,130	\$4,880,412	\$238,861	\$1,608,115	\$1,397,790	\$1,629,719	5
\$149,045	\$160,833	\$73,986	\$511,903	\$36,167	\$2,945,938	\$49,044	\$1,516,796	\$1,166,575	\$859,888	6
24	8	15	77	21	509	27	498	366	65	7
13	9	19	99	2	303	17	176	155	109	8
\$12,840	\$10,084	\$17,220	\$91,565	\$2,900	\$349,845	\$19,540	\$172,324	\$145,564	\$117,212	9
6	1	5	31	-----	58	3	45	43	29	10
\$6,000	\$2,400	\$5,800	\$40,550	-----	\$99,139	\$3,390	\$55,487	\$51,273	\$37,345	11
7	8	14	68	2	245	14	131	112	80	12
\$6,840	\$7,684	\$11,420	\$51,015	\$2,900	\$250,706	\$16,150	\$116,837	\$94,291	\$79,867	13
7	7	14	68	2	233	14	128	107	71	14
\$6,840	\$7,164	\$11,420	\$51,015	\$2,900	\$243,351	\$16,150	\$114,817	\$92,414	\$75,307	15
-----	1	-----	-----	-----	12	-----	3	5	9	16
-----	\$520	-----	-----	-----	\$7,355	-----	\$2,020	\$1,877	\$4,560	17
421	446	552	2,454	189	8,867	501	5,916	4,693	2,443	18
130	57	312	1,252	117	4,008	294	3,237	2,415	1,362	19
209	257	425	1,446	72	5,463	217	3,335	2,633	1,800	20
\$85,941	\$90,528	\$108,598	\$350,194	\$44,891	\$3,052,436	\$104,219	\$1,402,850	\$1,241,596	\$840,679	21
207	246	418	1,361	71	5,388	216	3,272	2,591	1,794	22
\$85,437	\$89,377	\$107,810	\$340,895	\$44,480	\$3,038,348	\$104,069	\$1,393,450	\$1,234,940	\$839,623	23
-----	-----	-----	-----	-----	1	-----	1	1	-----	24
-----	-----	-----	-----	-----	\$162	-----	\$121	\$146	-----	25
2	11	7	85	1	74	1	62	41	6	26
\$504	\$1,151	\$788	\$9,299	\$411	\$13,926	\$150	\$9,279	\$6,510	\$1,056	27
50	54	357	768	3	1,937	84	1,371	729	1,401	28
50	43	398	799	4	1,814	116	1,331	780	1,414	29
45	112	472	1,121	4	2,961	162	1,828	1,201	1,671	30
258	304	469	1,546	47	5,322	233	3,115	2,461	1,816	31
343	367	469	1,801	106	7,080	334	4,396	3,568	1,870	32
354	405	465	1,819	183	7,600	350	4,756	3,963	1,948	33
327	407	467	1,757	171	7,643	338	4,972	4,014	1,965	34
331	357	430	1,670	119	7,558	250	4,933	4,016	2,023	35
287	373	368	1,569	112	7,420	237	4,643	3,807	2,034	36
231	276	372	1,448	67	6,602	189	3,795	3,188	1,964	37
106	135	393	1,130	29	4,881	170	2,408	2,078	1,802	38
62	89	356	904	7	3,838	129	1,716	1,287	1,680	39
-----	7	2	25	1	10	-----	-----	5	2	40
-----	8	2	24	1	15	-----	-----	9	2	41
-----	6	2	50	1	35	-----	-----	10	5	42
3	16	8	103	1	61	-----	49	36	6	43
1	16	8	120	1	109	-----	106	66	6	44
1	13	8	130	1	127	-----	117	80	8	45
5	14	13	126	1	127	2	131	76	9	46
4	14	14	122	1	128	2	128	72	10	47
3	14	11	115	1	104	3	111	69	7	48
4	14	10	102	1	78	2	71	38	7	49
1	14	3	70	1	50	2	23	21	11	50
-----	8	3	33	1	44	1	6	10	2	51
-----	2	3	-----	-----	-----	-----	-----	-----	-----	-----
\$32,511	\$20,826	\$19,439	\$167,608	\$8,762	\$831,309	\$23,176	\$328,430	\$297,636	\$169,855	52
\$1,595	\$302	-----	\$3,087	\$50	\$35,375	\$565	\$9,764	\$13,276	\$11,124	53
\$439	\$1,319	\$978	\$6,151	\$553	\$38,566	\$1,502	\$27,322	\$20,465	\$21,642	54
\$30,477	\$8,208	\$18,461	\$109,210	\$4,959	\$753,004	\$21,109	\$282,534	\$259,737	\$125,208	55
-----	\$10,997	-----	\$49,160	\$3,200	\$4,364	-----	\$8,810	\$4,158	\$11,881	56
\$26,485	\$46,218	\$64,919	\$365,069	\$27,415	\$1,705,475	\$51,461	\$981,889	\$838,139	\$444,161	57
800	-----	3,500	1,665	-----	93,926	105	143,101	38,907	115,412	58
\$710	\$487	-----	\$925	-----	\$40,208	\$105	\$52,050	\$20,741	\$38,220	59
3	-----	-----	-----	-----	14,093	-----	1,351	69	4	60
\$3	-----	-----	-----	-----	\$29,058	-----	\$2,166	\$156	\$9	61
376	465	-----	175	-----	7,481	80	13,806	11,400	6,262	62
\$426	\$460	-----	\$175	-----	\$8,053	\$105	\$16,062	\$6,543	\$2,834	63
-----	-----	1,150	-----	-----	1	-----	1,242	862	205	64
-----	-----	\$8,900	-----	-----	\$13	-----	\$6,948	\$3,426	\$1,640	65
-----	-----	-----	-----	-----	144,177	-----	92,000	200	-----	66
-----	-----	-----	-----	-----	\$1,472	-----	\$930	\$2	-----	67
-----	-----	-----	-----	7	44	6	291	187	-----	68
-----	-----	-----	-----	\$69	\$285	\$95	\$1,295	\$1,123	-----	69
\$23,942	\$44,827	\$46,408	\$321,032	\$22,683	\$1,506,416	\$45,877	\$695,464	\$725,506	\$349,291	70
-----	-----	-----	\$470	\$2,400	\$1,712	-----	\$1,211	\$600	-----	71
\$245	\$911	\$1,851	\$17,888	\$398	\$58,107	\$3,739	\$27,116	\$20,625	\$21,158	72
\$830	\$920	\$7,273	\$2,849	\$1,865	\$34,773	\$1,540	\$72,989	\$37,678	\$17,433	73
\$329	-----	-----	\$21,750	-----	\$25,378	-----	\$105,658	\$21,739	\$13,576	74

TABLE 17.—BRICK AND TILE—DETAILED SUMMARY,

		United States.	Alabama.	Arizona.	Arkansas	California.	Colorado.	Connecticut.
75	Products:							
	Aggregate value.....	\$71,152,062	\$846,866	\$45,881	\$792,426	\$1,915,561	\$817,019	\$1,081,147
	Brick—							
76	Total—							
77	Thousands.....	9,872,429	141,414	6,280	109,655	265,504	108,428	184,675
	Value.....	\$64,476,199	\$839,776	\$45,881	\$791,702	\$1,833,945	\$808,716	\$1,074,647
78	Common—							
79	Thousands.....	8,551,463	132,605	3,680	101,899	257,108	79,318	179,175
	Value.....	\$50,438,486	\$751,369	\$26,530	\$730,962	\$1,728,530	\$496,906	\$995,147
80	Sand-lime—							
81	Thousands.....	86,450	1,696	2,600	5,962	3,817	4,000	
	Value.....	\$659,157	\$14,967	\$19,351	\$46,940	\$35,425	\$64,000	
82	Red front (both pressed and wire cut)—							
83	Thousands.....	358,518	355		1,550	4,538	21,471	2,500
	Value.....	\$3,432,815	\$2,900		\$10,625	\$69,140	\$184,694	\$37,500
84	Fancy colored front (all except red front)—							
85	Thousands.....	195,895				40	2,997	
	Value.....	\$2,693,842				\$840	\$51,275	
	Ornamental shaped (all not plain rectangular)—							
86	Thousands.....	25,720	5			1	77	
87	Value.....	\$487,589	\$110			\$10	\$3,361	
88	Vitrified paving—							
89	Thousands.....	640,469	6,753				81	3,000
	Value.....	\$6,510,134	\$70,430				\$729	\$42,000
90	Fire brick—							
91	Thousands.....	9,719			.244		484	
	Value.....	\$180,795			\$3,175		\$7,751	
92	Enameled brick—							
93	Thousands.....	4,195						
94	Value.....	\$73,381						
95	Drain tile.....	\$4,990,672	\$217		\$500	\$27,715	\$3,780	
	All other products.....	\$1,685,191	\$6,873		\$224	\$53,901	\$4,523	\$6,500
96	Power:							
97	Number of establishments reporting.....	3,476	55	2	31	52	33	31
	Total horsepower.....	255,832	3,360	143	1,851	5,067	2,192	3,254
	Owned—							
	Engines—							
98	Steam—							
99	Number.....	4,113	61	1	35	60	32	46
	Horsepower.....	246,200	3,341	125	1,841	4,589	2,081	3,199
100	Gas or gasoline—							
101	Number.....	222	2	1		7		
	Horsepower.....	5,245	9	18		113		
102	Water wheels—							
103	Number.....	15				2		1
	Horsepower.....	457				75		10
104	Water motors—							
105	Number.....	1						
	Horsepower.....	1						
106	Electric motors—							
107	Number.....	43						
108	Horsepower.....	470						
	Other power, horsepower.....	481	10					
	Rented—							
109	Electric motors—							
110	Number.....	85			2	11	3	2
111	Horsepower.....	2,566			10	290	111	45
112	Other kind, horsepower.....	412						
	Furnished to other establishments, horsepower.....	160						
	Machinery:							
113	Clay grinding machines—							
114	Disintegrators.....	1,531	23		15	29	12	26
115	Dry pans.....	1,002	5		8	20	28	
	All other.....	730	8	1	10	12	2	11
116	Clay tempering machines—							
117	Ring pits.....	1,269	22		5	4	9	4
118	Pug mills.....	2,368	32	20	26	65	90	28
119	Wet pans.....	118	2			5		
	All other.....	172	2		1	2		1
120	Molding machines—							
121	Soft mud.....	2,381	16	1	21	53	22	43
122	Stiff mud.....	1,574	40		15	24	18	8
123	Dry presses.....	553	4	1	13	3	27	1
124	Shape brick power presses.....	329	6		4	8	4	1
125	Hand presses.....	746	11		3	10	6	
126	Sewer pipe presses.....	24						
127	Tile machines.....	895	2		1	4	2	
128	All other.....	2,662	37	13	18	29	54	15
	Mold sanders.....	1,191	5		5	35	5	42
129	Kilns—							
	Clamp.....	4,208	135	1	58	29	90	52
130	Down draft—							
131	Round.....	4,332	74		10	22	48	
132	Rectangular.....	1,936	14		16	21	11	7
133	Muffle.....	40			1		1	
134	Continuous.....	254				19	1	6
	All other.....	16,354	26	11	43	115	98	174
135	Other machinery—							
136	Dryers.....	1,110	27		11	19	5	1
137	All other.....	1,740	29	4	19	19	11	4
	Idle machinery.....	645	7	1	7	13	5	1

¹ Includes temporary kilns.

CLAY PRODUCTS.

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BY STATES AND TERRITORIES: 1905—Continued.

Delaware.	District of Columbia.	Florida.	Georgia.	Idaho.	Illinois.	Indian Territory.	Indiana.	Iowa.	Kansas.	
\$205,236	\$185,748	\$236,634	\$1,337,372	\$112,770	\$7,546,409	\$248,931	\$3,818,238	\$3,361,776	\$1,907,343	75
23,970	24,489	40,312	255,436	13,618	1,141,316	35,577	395,919	256,147	330,736	76
\$198,636	\$185,748	\$233,322	\$1,334,372	\$112,770	\$6,646,516	\$222,548	\$2,618,368	\$1,873,775	\$1,859,908	77
22,735	24,414	34,712	247,978	12,995	989,549	33,256	307,151	212,801	215,651	78
\$183,186	\$184,948	\$197,222	\$1,263,158	\$98,000	\$5,143,531	\$196,678	\$1,825,758	\$1,465,907	\$938,858	79
		5,600					11,000		800	80
		\$36,100					\$57,000		\$5,600	81
1,235	25		7,368	110	36,690	1,425	29,493	7,256	13,211	82
\$15,450	\$375		\$70,494	\$1,650	\$363,280	\$16,150	\$217,912	\$67,106	\$115,697	83
			00	154	12,504		500	855	7,646	84
			\$720	\$3,850	\$171,949		\$3,500	\$12,481	\$67,975	85
	50				873	800	117	358	3,210	86
	\$425				\$23,906	\$8,400	\$1,167	\$3,472	\$29,010	87
				300	101,617	50	47,608	34,177	90,162	88
				\$7,500	\$942,766	\$700	\$512,529	\$316,409	\$702,277	89
				59	83	46	50		56	90
				\$1,770	\$1,084	\$620	\$500		\$491	91
								700		92
\$6,600		\$2,797	\$1,000		\$871,421		\$1,175,809	\$8,400		93
		\$515	\$2,000		\$28,472	\$26,383	\$24,063	\$1,299,766	\$6,033	94
								\$188,235	\$41,402	95
9	7	14	57	3	312	17	316	225	55	96
479	770	903	5,479	147	28,122	1,805	15,896	14,645	7,240	97
10	8	17	79	2	449	24	339	249	81	98
479	770	563	5,453	47	27,317	1,805	15,106	14,463	6,934	99
		1	1		16		27	12	5	100
		40	6		247		679	146	306	101
										102
										103
							1			104
							1			105
					9					106
					63					107
					542					108
							10	4		
			1	1	5		1	2		109
			20	100	135		100	32		110
					18					111
										112
7	3	■	34	1	118	5	141	58	11	113
	2		6	1	86	12	58	67	62	114
	3		7		41	3	63	63	3	115
■	7		2	7	61	4	142	60	7	116
13	7	6	35	8	138	10	111	151	47	117
					2	1	2	2	3	118
					35	1	16	10	2	119
1	1		4							
6		1	10	11	130	■	126	91	14	120
3	7	10	51	5	167	8	65	120	38	121
	1	3	2		42	9	17	21	37	122
		2	1		35	1	15	15	10	123
7	■	■	22	1	33	2	33	27	20	124
					33		11	2		125
		2	2		112		206	109	5	126
17	1	2	16	8	175	24	223	88	29	127
4	1	3	2	2	30		78	7	2	128
11	3	10	130	10	257	29	310	98	173	129
1		12	13	3	722	10	438	542	50	130
	6	26	26	6	185	2	104	77	64	131
							1	2	1	132
		6	2		41		9	14	12	133
25	20	7	112	27	927	36	158	107	49	134
2	2	2	85	1	87	7	73	83	51	135
3	1	9	■	3	76	5	332	273	383	136
4	5	5	19		39	2	30	30	17	137

MANUFACTURES.

TABLE 17.—BRICK AND TILE—DETAILED SUMMARY,

	Kentucky.	Louisiana.	Maine.	Maryland.	Massachu- setts.	Michigan.	Minnesota.
1 Number of establishments.....	88	62	60	50	64	169	101
2 Capital:							
3 Total.....	\$1,562,656	\$1,343,017	\$599,015	\$5,336,963	\$2,460,983	\$2,181,805	\$1,688,273
4 Land.....	\$300,844	\$316,630	\$109,170	\$2,210,387	\$671,413	\$480,072	\$443,233
5 Buildings.....	\$228,318	\$312,373	\$130,075	\$1,381,138	\$586,236	\$393,473	\$405,429
6 Machinery, tools, and implements.....	\$573,347	\$385,712	\$108,740	\$1,137,322	\$386,763	\$728,236	\$318,774
7 Cash and sundries.....	\$460,147	\$328,302	\$251,030	\$608,116	\$816,571	\$580,024	\$520,837
8 Proprietors and firm members.....	96	58	68	50	63	206	132
9 Salaried officials, clerks, etc.:							
10 Total number.....	67	65	18	76	47	89	52
11 Total salaries.....	\$47,694	\$50,541	\$12,881	\$77,798	\$41,372	\$73,222	\$42,781
12 Officers of corporations—							
13 Number.....	24	11	5	23	3	26	9
14 Salaries.....	\$19,220	\$8,760	\$4,280	\$44,165	\$8,200	\$25,203	\$13,250
15 General superintendents, managers, clerks, etc.—							
16 Total number.....	43	54	13	53	44	63	43
17 Total salaries.....	\$28,474	\$41,781	\$8,601	\$33,633	\$33,172	\$48,019	\$29,531
18 Men—							
19 Number.....	42	52	12	50	43	60	39
20 Salaries.....	\$27,874	\$41,021	\$8,265	\$32,801	\$33,028	\$47,019	\$27,531
21 Women—							
22 Number.....	1	2	1	3	1	3	4
23 Salaries.....	\$600	\$760	\$336	\$832	\$144	\$1,000	\$2,000
24 Wage-earners, including pieceworkers, and total wages:							
25 Greatest number employed at any one time during the year.....	2,183	1,865	786	2,461	2,326	2,943	2,382
26 Least number employed at any one time during the year.....	1,085	655	418	904	865	1,546	1,070
27 Average number.....	1,114	1,027	330	1,464	1,098	1,436	993
28 Total wages.....	\$362,138	\$398,784	\$164,719	\$534,002	\$495,759	\$650,640	\$466,478
29 Men 16 years and over—							
30 Average number.....	1,077	982	328	1,458	1,096	1,406	974
31 Wages.....	\$358,072	\$390,276	\$164,172	\$533,152	\$495,069	\$644,186	\$462,373
32 Women 16 years and over—							
33 Average number.....			1		1	3	3
34 Wages.....			\$437		\$400	\$930	\$630
35 Children under 16 years—							
36 Average number.....	37	45	1	6	1	27	16
37 Wages.....	\$4,066	\$8,508	\$110	\$850	\$290	\$5,524	\$3,475
38 Average number of wage-earners, including pieceworkers, em- ployed during each month:							
39 Men 16 years and over—							
40 January.....	327	383	22	549	274	493	127
41 February.....	324	520	10	539	274	477	128
42 March.....	616	863	20	827	341	570	215
43 April.....	1,048	1,157	119	1,439	892	1,108	547
44 May.....	1,497	1,282	581	1,988	1,766	2,218	1,645
45 June.....	1,693	1,343	692	2,097	2,050	2,482	2,053
46 July.....	1,777	1,384	698	2,184	2,100	2,484	2,090
47 August.....	1,757	1,356	683	2,039	1,915	2,365	1,980
48 September.....	1,494	1,282	619	2,002	1,636	2,055	1,456
49 October.....	1,223	1,051	307	1,663	1,064	1,393	909
50 November.....	744	716	145	1,237	549	719	346
51 December.....	424	447	40	932	291	508	192
52 Children under 16 years—							
53 January.....	5	15					2
54 February.....	5	17					2
55 March.....	12	41					2
56 April.....	38	55					7
57 May.....	59	66	2	7	2	47	35
58 June.....	64	70	3	10	2	57	40
59 July.....	75	73	3	10	2	63	37
60 August.....	70	68	3	11	2	65	34
61 September.....	55	58	1	10	2	50	23
62 October.....	46	45		12		27	5
63 November.....	11	18		4		6	1
64 December.....	4	14		1		2	1
65 Miscellaneous expenses:							
66 Total.....	\$109,381	\$101,596	\$21,721	\$85,163	\$112,412	\$134,796	\$94,822
67 Rent of works.....	\$2,231	\$7,599	\$1,852	\$3,974	\$4,354	\$12,106	\$525
68 Taxes.....	\$6,455	\$7,564	\$4,035	\$10,981	\$19,791	\$11,984	\$8,238
69 Rent of offices, interest, insurance, and all sundry expenses not hitherto included.....	\$95,345	\$86,358	\$15,134	\$63,388	\$87,876	\$91,932	\$73,036
70 Contract work.....	\$5,350	\$75	\$700	\$6,820	\$391	\$18,774	\$13,023
71 Materials used:							
72 Total cost.....	\$175,692	\$209,662	\$117,500	\$227,140	\$329,805	\$425,142	\$290,302
73 Clay purchased—							
74 Tons.....	18,270		8,251	6,850	6,193	38,085	346
75 Cost.....	\$13,164		\$3,773	\$3,463	\$5,010	\$8,094	\$757
76 Coal, used as an ingredient—							
77 Tons.....	33	24		169	1,207	329	147
78 Cost.....	\$50	\$72		\$609	\$2,590	\$795	\$464
79 Sand—							
80 Tons.....	6,518	695	6,138	5,013	8,362	8,243	1,557
81 Cost.....	\$4,668	\$765	\$3,918	\$7,001	\$5,351	\$6,058	\$1,956
82 Lime—							
83 Tons.....	260	62		39		1,846	500
84 Cost.....	\$845	\$316		\$156		\$8,185	\$4,000
85 Manganese—							
86 Pounds.....				2,500	5,000	50,000	130,000
87 Cost.....				\$25	\$150	\$405	\$1,300
88 Salt—							
89 Tons.....		1					2
90 Cost.....		\$5					\$19
91 Fuel.....	\$145,502	\$189,817	\$103,016	\$206,352	\$306,871	\$366,351	\$262,959
92 Rent of power and heat.....	\$125		\$537			\$800	\$760
93 Mill supplies.....	\$5,595	\$13,084	\$1,618	\$6,144	\$6,897	\$9,567	\$5,831
94 All other materials.....	\$3,965	\$5,328	\$4,638	\$2,607	\$1,754	\$12,828	\$8,702
95 Freight.....	\$1,778	\$275		\$783	\$1,182	\$12,059	\$3,554

CLAY PRODUCTS.

903

BY STATES AND TERRITORIES: 1905—Continued.

Mississippi.	Missouri.	Montana.	Nebraska	Nevada.	New Hampshire.	New Jersey.	New Mexico.	New York.	North Carolina.	
74	162	14	99	5	36	88	10	192	111	1
\$846,508	\$7,457,911	\$240,100	\$1,565,889	\$73,005	\$932,579	\$3,040,470	\$41,700	\$10,954,096	\$651,492	2
\$136,084	\$1,431,111	\$101,300	\$205,424	\$18,150	\$146,042	\$714,337	\$2,650	\$4,027,416	\$127,415	3
\$204,449	\$559,552	\$26,800	\$421,668	\$4,100	\$141,454	\$569,638	\$3,900	\$1,869,826	\$110,495	4
\$279,690	\$1,898,997	\$47,450	\$313,868	\$23,535	\$285,214	\$799,328	\$13,100	\$2,422,524	\$235,184	5
\$226,285	\$3,568,251	\$64,550	\$624,929	\$27,220	\$359,869	\$957,167	\$22,050	\$2,634,330	\$178,398	6
88	181	13	129	9	32	73	11	213	146	7
63	161	8	50	1	19	70	4	243	46	8
\$44,895	\$179,025	\$13,400	\$40,873	\$3,000	\$18,739	\$67,974	\$3,600	\$281,207	\$24,681	9
7	41	1	13		3	14	2	76	12	10
\$5,400	\$63,576	\$3,000	\$9,220		\$6,400	\$22,400	\$3,000	\$127,296	\$8,563	11
56	120	7	37	1	16	56	2	167	34	12
\$39,495	\$115,449	\$9,800	\$31,653	\$3,000	\$12,339	\$45,574	\$600	\$153,911	\$16,118	13
55	112	7	36	1	16	51	2	155	34	14
\$38,995	\$111,419	\$9,800	\$30,153	\$3,000	\$12,339	\$42,807	\$600	\$149,195	\$16,118	15
1	8		1			5		12		16
\$500	\$4,030		\$1,500			\$2,767		\$4,716		17
1,645	3,820	260	1,758	66	1,145	3,278	118	12,094	2,618	18
1,053	2,085	187	628	41	304	967	99	5,583	1,310	19
903	2,337	97	905	21	527	1,947	64	6,337	1,079	20
\$271,806	\$1,118,600	\$76,665	\$471,425	\$15,816	\$228,979	\$784,202	\$31,409	\$3,160,797	\$247,050	21
31	2,233	95	882	21	524	1,929	57	6,713	1,018	22
\$259,048	\$1,096,521	\$76,020	\$466,285	\$15,816	\$228,493	\$778,425	\$29,896	\$3,155,063	\$240,432	23
			1		1	4				24
			\$210		\$305	\$858				25
72	104	2	22		2	23	7	24	61	26
\$12,758	\$22,169	\$645	\$4,930		\$181	\$4,919	\$1,513	\$5,734	\$6,618	27
202	1,165	7	219		133	533	34	1,132	209	28
221	1,188	7	227		87	557	34	1,088	210	29
515	1,654	10	340		117	874	41	1,890	410	30
100	2,206	79	928		248	1,709	62	4,694	1,311	31
1,081	2,655	167	1,401	14	959	2,396	95	10,055	1,620	32
1,202	2,835	180	1,529	57	982	2,705	84	11,117	1,787	33
1,223	2,968	222	1,463	57	948	2,849	65	11,325	1,830	34
1,294	2,955	199	1,388	49	985	2,987	56	11,033	1,747	35
1,161	2,894	128	1,257	40	887	2,959	57	10,505	1,442	36
1,037	2,545	89	977	25	572	2,592	52	9,372	1,003	37
728	2,181	43	534	5	228	1,758	52	5,262	404	38
405	1,650	9	281	5	142	1,121	52	3,083	243	39
28	27					1	5		4	40
29	30					1	5		11	41
61	47		4			1	5		37	42
80	98		17			33	5	6	78	43
93	147	3	39		5	39	8	35	114	44
100	147	3	48			39	9	47	125	45
93	164	8	46		3	39	8	49	121	46
106	169	7	45		3	39	8	50	103	47
91	161	3	38		4	39	8	52	75	48
85	134		25		3	37	8	37	54	49
70	85		2		1	7	8	11	11	50
38	39				1	1	7	1	6	51
\$43,095	\$357,546	\$13,788	\$61,343	\$2,697	\$51,287	\$144,401	\$1,768	\$730,066	\$35,574	52
\$522	\$9,848	\$410	\$1,310	\$163	\$270	\$11,600	\$180	\$84,297	\$1,525	53
\$5,359	\$28,133	\$1,491	\$6,677	\$202	\$3,817	\$12,848	\$346	\$52,319	\$3,406	54
\$35,525	\$297,539	\$8,387	\$53,056	\$2,332	\$44,950	\$118,567	\$1,242	\$578,370	\$26,976	55
\$1,689	\$22,026	\$3,500	\$300		\$2,250	\$1,386		\$15,080	\$3,667	56
\$177,423	\$668,876	\$38,069	\$277,174	\$6,265	\$151,118	\$336,988	\$17,605	\$1,368,045	\$107,476	57
25,685	13,152	1,000	1,461	50	5,324	61,821		35,448	3,043	58
\$21,264	\$14,234	\$1,000	\$1,609	\$50	\$1,119	\$19,364		\$31,037	\$1,243	59
10	1,912		2,878			7,516		30,239	82	60
110	\$2,025		\$8,640			\$11,394		\$56,081	\$127	61
3,759	2,253	3,820	2,139	25	2,770	11,232		127,064	1,264	62
\$3,928	\$3,183	\$3,527	\$1,828	\$25	\$913	\$8,523		\$82,498	\$637	63
56			266			625		494	187	64
\$513			\$400			\$2,906		\$2,712	\$1,250	65
	594,645		125,850			176,000		708,400		66
	\$6,518		\$2,517			\$1,859		\$7,265		67
	20	36	54			1,074		77		68
	\$130	\$576	\$408			\$3,650		\$309		69
\$140,770	\$579,675	\$25,593	\$248,103	\$4,990	\$142,484	\$256,779	\$15,946	\$977,849	\$154,538	70
\$710		\$1,500		\$1,125		\$897		\$5,618	802	71
\$5,135	\$16,027	\$873	\$10,251	\$75	\$3,606	\$7,306	\$474	\$34,774	\$4,388	72
\$4,581	\$39,865	\$3,000	\$2,934		\$933	\$17,424	\$1,145	\$60,358	\$4,219	73
\$512	\$7,219	\$2,000	\$484		\$2,063	\$6,886		\$109,544	\$1,012	74

TABLE 17.—BRICK AND TILE—DETAILED SUMMARY,

		Kentucky.	Louisiana.	Maine.	Maryland.	Massachu- setts.	Michigan.	Minnesota
75	Products:							
	Aggregate value	\$886,736	\$972,523	\$420,111	\$1,097,072	\$1,170,710	\$1,650,988	\$1,227,135
76	Brick—							
77	Total—							
	Thousands.....	145,952	149,846	65,522	162,094	181,971	255,258	187,202
	Value.....	\$857,382	\$963,823	\$415,606	\$1,093,877	\$1,168,410	\$1,497,281	\$1,186,695
78	Common—							
79	Thousands.....	134,254	145,496	62,552	158,667	177,971	238,141	173,153
	Value.....	\$753,282	\$922,573	\$391,166	\$1,039,051	\$1,110,510	\$1,366,405	\$1,039,712
80	Sand-lime—							
81	Thousands.....	400			300		9,224	5,000
	Value.....	\$2,800			\$2,400		\$48,550	\$40,000
82	Red front (both pressed and wire cut)—							
83	Thousands.....	7,527	150	2,970	2,285	3,400	3,498	2,710
	Value.....	\$56,028	\$2,250	\$24,440	\$36,423	\$27,700	\$28,436	\$20,389
84	Fancy colored front (all except red front)—							
85	Thousands.....		4,000		396	400	150	6,040
	Value.....		\$36,000		\$7,946	\$16,000	\$1,350	\$80,694
86	Ornamental shaped (all not plain rectan- gular)—							
87	Thousands.....	5	100		106	200	10	99
	Value.....	\$60	\$2,000		\$3,297	\$14,200	\$200	\$3,900
88	Vitrified paving—							
89	Thousands.....	3,719	100		340		4,185	200
	Value.....	\$44,627	\$1,000		\$4,760		\$51,340	\$2,000
90	Fire brick—							
91	Thousands.....	47						
	Value.....	\$595						
92	Enameled brick—							
93	Thousands.....						50	
94	Value.....						\$1,000	
95	Drain tile.....	\$27,824	\$300	\$3,900	\$3,090		\$138,392	\$15,635
	All other products.....	\$1,530	\$8,400	\$605	\$105	\$2,300	\$15,315	\$24,805
96	Power:							
97	Number of establishments reporting.....	57	52	29	29	48	158	83
	Total horsepower.....	3,098	3,215	880	4,353	3,745	8,147	4,132
	Owned—							
	Engines—							
98	Steam—							
99	Number.....	63	66	11	60	53	172	83
	Horsepower.....	3,084	3,215	657	4,346	3,690	7,904	3,874
100	Gas or gasoline—							
101	Number.....	3		14	1	3	9	13
	Horsepower.....	12		133	4	10	141	173
102	Water wheels—							
103	Number.....			1		1	2	
	Horsepower.....			15		25	25	
104	Water motors—							
105	Number.....							
	Horsepower.....							
106	Electric motors—							
107	Number.....							1
	Horsepower.....							3
108	Other power, horsepower.....			10	3	20		20
	Rented—							
109	Electric motors—							
110	Number.....			4			1	2
	Horsepower.....			65			7	62
111	Other kind, horsepower.....	2					70	
112	Furnished to other establishments, horsepower.....			75				
	Machinery:							
113	Clay grinding machines—							
114	Disintegrators.....	29	37	24	18	44	75	53
115	Dry pans.....	5	3		8		9	2
	All other.....	11	3	33	11	20	36	10
116	Clay tempering machines—							
117	Ring pits.....	46	17	7	40	11	35	23
118	Pug mills.....	50	41	20	46	45	77	31
119	Wet pans.....	4	16	15	6		1	1
	All other.....	11	1	2	2	6	7	2
120	Molding machines—							
121	Soft mud.....	43	19	86	28	62	94	59
122	Stiff mud.....	22	30	11	30	11	68	41
123	Dry presses.....	7	5		2	5	6	6
124	Shape brick power presses.....	6	3		4	4	12	8
125	Hand presses.....	10	4	5	33	5	15	10
126	Sewer pipe presses.....						1	1
127	Tile machines.....	13		2	2		61	9
128	All other.....	166	99	17	12	29	81	96
	Mold sanders.....	28	13	6	28	49	29	13
129	Kilns—							
	Clamp.....	143	112	36	113	18	105	82
130	Down draft—							
131	Round.....	39	34	4	29	6	78	16
132	Rectangular.....	30	28	13	21	7	23	42
133	Muffle.....	2	1	7				1
134	Continuous.....	4		11	1		10	11
	All other.....	62	17	90	33	332	289	184
	Other machinery—							
135	Dryers.....	6	16		26	3	25	
136	All other.....	20	3	2	1	5	50	25
137	Idle machinery.....	11	3	7		13	37	5

CLAY PRODUCTS.

905

BY STATES AND TERRITORIES: 1905—Continued.

Mississippi.	Missouri.	Montana.	Nebraska.	Nevada.	New Hamp- shire.	New Jersey.	New Mexico.	New York.	North Caro- lina.	
\$782,842	\$2,598,861	\$178,675	\$1,131,913	\$37,905	\$529,008	\$1,830,080	\$80,910	\$7,430,151	\$695,708	75
116,173	336,552	17,479	144,138	4,125	81,217	256,925	11,880	1,255,242	122,649	76
\$773,299	\$2,539,506	\$154,675	\$1,085,826	\$37,625	\$528,596	\$1,788,208	\$80,910	\$7,278,586	\$691,798	77
114,372	256,730	16,855	132,000	4,125	79,412	231,388	7,740	1,212,281	120,349	78
\$750,406	\$1,518,659	\$134,835	\$921,114	\$37,625	\$508,741	\$1,360,126	\$49,230	\$6,676,811	\$668,573	79
155						1,758		3,036	1,500	80
\$1,349						\$15,380		\$18,100	\$15,000	81
1,646	22,655	20	2,590		1,805	4,427	4,140	8,779	350	82
\$21,544	\$256,728	\$400	\$26,080		\$19,855	\$77,089	\$31,680	\$85,290	\$2,750	83
	2,280		7,885			17,724		16,815	150	84
	\$42,952		\$122,257			\$310,068		\$285,350	\$1,875	85
	3,963		133			278		16		86
	\$172,759	\$140	\$3,325			\$12,045		\$850		87
	49,729	100	1,530			1,350		12,030		88
	\$507,499	\$1,500	\$13,050			\$13,500		\$152,589		89
		500						2,285	300	90
		\$17,500						\$59,596	\$3,600	91
	1,195									92
	\$40,909									93
\$7,102	\$38,580		\$150			\$16,430		\$95,787	\$2,760	94
\$2,441	\$20,775	\$24,000	\$45,937	\$250	\$412	\$25,442		\$55,778	\$1,150	95
48	89	8	70	1		52		169	79	96
2,368	6,978	589	3,510	120	1,315	5,979	163	19,110	3,222	97
51	126	8	67		13	85	5	201	84	98
2,365	6,729	424	3,281		1,210	5,886	155	18,443	3,222	99
1	5		12				1	5		100
3	214		199		25		8	77		101
			1					1		102
			30					50		103
										104
										105
	2				8	1		1		106
	33				80	8		20		107
								25		108
		4		2		2		10		109
	2	165		120		85		195		110
								300		111
								75		112
32	38	1	23	1	31	32	2	89	30	113
	29	2	8	1		1	2	35		114
5	51		18		6	9	1	24	34	115
27	51		22		43	122		160	16	116
20	58	12	45	8	9	22	12	109	28	117
		1	1			4		2		118
3	3				1	7		4	14	119
19	42	15	37		80	120	1	479	9	120
31	55	3	40	2	7	20	1	36	46	121
5	59	1	8	1		7	3	9		122
	6	1	2	1		5		15	12	123
5	20	4	11		4	51	2	29	16	124
						1				125
		1	1			5		15	4	126
81	13		1			16	44	27	152	127
16	8	4	53	4	65	62		383	11	128
			6		4					
128	212	5	125	4	24	48	6	138	77	129
22	76	8	70			40		98		130
9	122		8	1	2	54	5	127	42	131
	4							6		132
1	4	1	25		2	4		21		133
23	130	29	34	7	80	206	8	1,246	279	134
5	32		5		1	18		35	3	135
5	81	2	6	4	2	12	2	29	7	136
14	25	3	12	1	4	12		30	7	137

TABLE 17.—BRICK AND TILE—DETAILED SUMMARY,

	North Dakota.	Ohio.	Oklahoma.	Oregon.	Pennsylvania.	South Carolina.
1 Number of establishments.....	14	590	23	43	370	47
2 Capital:						
3 Total.....	\$204,497	\$12,048,599	\$321,974	\$366,347	\$13,886,769	\$516,909
4 Land.....	\$12,000	\$2,136,195	\$28,425	\$37,650	\$3,606,816	\$76,764
5 Buildings.....	\$13,700	\$3,348,650	\$35,627	\$54,793	\$2,858,940	\$75,501
6 Machinery, tools, and implements.....	\$83,252	\$3,240,078	\$169,563	\$89,924	\$3,819,833	\$234,458
7 Cash and sundries.....	\$95,545	\$3,323,676	\$88,359	\$133,980	\$3,601,180	\$130,186
8 Proprietors and firm members.....	10	704	20	56	445	52
9 Salaried officials, clerks, etc.:						
10 Total number.....	15	416	17	10	424	36
11 Total salaries.....	\$10,200	\$390,159	\$14,660	\$8,750	\$355,133	\$29,072
12 Officers of corporations—						
13 Number.....	7	127	6	2	43	6
14 Salaries.....	\$5,950	\$153,080	\$5,165	\$1,650	\$91,277	\$5,820
15 General superintendents, managers, clerks, etc.—						
16 Total number.....	8	289	11	8	331	30
17 Total salaries.....	\$4,250	\$237,099	\$9,495	\$7,100	\$263,856	\$23,252
18 Men—						
19 Number.....	8	263	11	7	281	30
20 Salaries.....	\$4,250	\$226,773	\$9,495	\$6,600	\$251,613	\$23,252
21 Women—						
22 Number.....		26		1	50	
23 Salaries.....		\$10,326		\$500	\$12,243	
24 Wage-earners, including pieceworkers, and total wages:						
25 Greatest number employed at any one time during the year.....	301	10,571	396	648	11,431	1,592
26 Least number employed at any one time during the year.....	167	6,244	216	285	6,173	806
27 Average number.....	117	6,719	184	264	7,561	875
28 Total wages.....	\$59,825	\$2,941,685	\$81,559	\$131,553	\$3,212,829	\$184,292
29 Men 16 years and over—						
30 Average number.....	116	6,652	183	261	7,414	851
31 Wages.....	\$59,625	\$2,929,400	\$81,259	\$130,653	\$3,186,661	\$181,806
32 Women 16 years and over—						
33 Average number.....		6				
34 Wages.....		\$1,646				
35 Children under 16 years—						
36 Average number.....	1	61	1	3	147	24
37 Wages.....	\$200	\$10,579	\$300	\$900	\$26,168	\$2,486
38 Average number of wage-earners, including pieceworkers, employed during each month:						
39 Men 16 years and over—						
40 January.....	10	3,327	130	51	3,682	454
41 February.....	10	3,344	125	54	3,757	486
42 March.....	20	4,313	230	57	5,042	612
43 April.....	33	6,402	261	265	7,619	1,007
44 May.....	188	8,431	303	435	9,290	1,196
45 June.....	253	9,052	237	568	9,474	1,212
46 July.....	268	9,360	185	575	9,718	1,199
47 August.....	274	9,176	174	476	9,768	1,128
48 September.....	168	8,802	173	324	9,543	1,058
49 October.....	82	7,565	153	159	8,807	785
50 November.....	52	5,668	111	100	6,887	604
51 December.....	34	4,384	114	68	5,381	471
52 Children under 16 years—						
53 January.....		6			22	6
54 February.....		7			26	6
55 March.....		8			39	13
56 April.....		45		2	116	36
57 May.....		101	6	6	226	41
58 June.....	3	123	6	6	254	45
59 July.....	3	135		8	262	33
60 August.....	3	122		6	244	32
61 September.....	3	103		5	232	16
62 October.....		63		1	175	12
63 November.....		13		1	99	6
64 December.....		11		1	69	
65 Miscellaneous expenses:						
66 Total.....	\$11,121	\$691,707	\$32,757	\$26,924	\$878,788	\$42,034
67 Rent of works.....	\$677	\$19,314	\$485	\$1,850	\$114,941	\$1,788
68 Taxes.....	\$492	\$56,505	\$1,776	\$2,154	\$47,939	\$2,994
69 Rent of offices, interest, insurance, and all sundry expenses not hitherto included.....	\$8,333	\$591,497	\$30,496	\$22,920	\$709,673	\$37,252
70 Contract work.....	\$1,619	\$24,391			\$6,235	
71 Materials used:						
72 Total cost.....	\$34,345	\$1,632,821	\$76,476	\$63,009	\$1,599,252	\$177,268
73 Clay purchased—						
74 Tons.....		157,129	145	45	99,233	800
75 Cost.....		\$73,036	\$386	\$212	\$55,049	\$800
76 Coal, used as an ingredient—						
77 Tons.....		943			3,009	
78 Cost.....		\$1,563			\$3,034	
79 Sand—						
80 Tons.....	490	14,432	117	621	25,537	
81 Cost.....	\$535	\$15,630	\$69	\$492	\$21,373	
82 Lime—						
83 Tons.....		277	10		660	100
84 Cost.....		\$1,090	\$125		\$2,100	\$480
85 Manganese—						
86 Pounds.....		1,458,067			218,759	250
87 Cost.....		\$16,667			\$2,470	\$10
88 Salt—						
89 Tons.....		433	4	11	73	
90 Cost.....		\$1,650	\$40	\$122	\$395	
91 Fuel.....	\$32,883	\$1,371,519	\$70,779	\$56,002	\$1,259,529	\$146,765
92 Rent of power and heat.....		\$362			\$817	\$1,270
93 Mill supplies.....	\$342	\$63,335	\$1,878	\$1,090	\$104,899	\$5,146
94 All other materials.....	\$25	\$41,317		\$5,090	\$74,144	\$4,695
95 Freight.....	\$560	\$46,652	\$3,199	\$1	\$75,442	\$16,102

CLAY PRODUCTS.

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BY STATES AND TERRITORIES: 1905—Continued.

South Dakota.	Tennessee.	Texas.	Utah.	Vermont.	Virginia.	Washington.	West Virginia.	Wisconsin.	Wyoming.	
10	84	02	39	9	84	51	37	141	3	1
\$174,535	\$1,200,394	\$1,608,653	\$438,476	\$100,085	\$3,145,805	\$966,470	\$1,962,217	\$3,051,666	\$14,096	2
\$41,370	\$253,991	\$253,345	\$56,116	\$19,200	\$801,053	\$223,358	\$226,219	\$700,663	\$350	3
\$41,944	\$189,275	\$336,911	\$139,470	\$20,830	\$646,375	\$182,556	\$675,963	\$495,628	\$800	4
\$54,100	\$364,352	\$567,672	\$143,290	\$20,835	\$785,635	\$263,462	\$391,342	\$1,004,048	\$9,500	5
\$37,121	\$392,776	\$450,725	\$99,600	\$39,220	\$912,742	\$297,094	\$668,693	\$851,327	\$3,446	6
9	108	71	53	11	84	52	29	146	2	7
6	68	81	15	7	128	45	48	84	2	8
\$3,080	\$64,769	\$73,860	\$12,630	\$5,180	\$117,808	\$37,150	\$55,502	\$73,628	\$940	9
2	13	13	6	2	27	11	12	17		10
\$900	\$20,090	\$15,320	\$6,010	\$2,400	\$34,315	\$15,510	\$19,790	\$18,260		11
4	55	65	6	5	101	34	36	67	2	12
\$2,180	\$44,679	\$58,540	\$6,620	\$2,780	\$83,493	\$21,640	\$35,712	\$55,368	\$940	13
4	50	68	8	5	99	32	35	62	2	14
\$2,180	\$42,924	\$58,540	\$6,120	\$2,780	\$82,993	\$21,240	\$35,232	\$53,152	\$940	15
	5		1		2	2	1	5		16
	\$1,755		\$500		\$500	\$400	\$450	\$2,216		17
132	2,109	2,271	609	224	3,382	971	1,251	3,188	26	18
88	1,333	1,179	260	89	1,659	521	1,502	1,502	6	19
49	1,234	1,308	291	108	1,964	512	763	1,038	6	20
\$27,401	\$378,043	\$470,007	\$172,598	\$46,811	\$680,140	\$305,839	\$329,995	\$685,725	\$5,714	21
49	1,185	1,257	273	108	1,872	510	754	1,591	6	22
\$27,401	\$371,808	\$461,540	\$169,052	\$46,811	\$667,661	\$305,545	\$328,284	\$677,551	\$5,714	23
					1		1	3		24
					\$240		\$162	\$255		25
	49	51	18		91	2	8	44		26
	\$6,235	\$8,467	\$3,546		\$12,239	\$294	\$1,549	\$7,919		27
	490	769	91	4	882	213	262	335		28
	567	805	108	5	957	218	293	360		29
	810	1,073	139	16	1,337	366	519	513		30
20	1,245	1,255	220	77	2,045	503	961	1,051	4	31
82	1,610	1,459	350	202	2,420	692	1,012	2,377	4	32
110	1,613	1,628	474	205	2,596	760	1,106	2,784	15	33
110	1,677	1,692	488	198	2,609	769	1,087	2,896	24	34
115	1,679	1,681	453	199	2,600	736	954	2,814	23	35
81	1,587	1,430	398	180	2,544	682	910	2,534	2	36
42	1,263	1,279	285	152	2,171	504	877	1,841		37
19	906	1,114	183	46	1,301	378	692	1,071		38
	773	899	87	12	1,002	299	375	516		39
	11	33	3		15		1	4		40
	11	34	3		16		1	5		41
	17	43	4		22		4	11		42
	53	58	9		112		9	22		43
	76	70	32		133	5	9	68		44
	73	75	41		150	5	10	83		45
	94	64	39		152	3	14	81		46
	94	59	34		142	5	13	96		47
	81	56	28		147	4	13	85		48
	40	44	15		122	2	13	45		49
	42	42	4		45		6	19		50
	12	34	4		36		3	9		51
										52
\$6,837	\$112,728	\$94,730	\$22,013	\$9,815	\$176,890	\$60,645	\$101,495	\$130,430	\$2,553	53
	\$6,515	\$462	\$904	\$2,300	\$2,186	\$595	\$1,148	\$5,200		54
\$823	\$4,943	\$5,920	\$1,202	\$404	\$11,281	\$4,830	\$5,100	\$17,614	\$58	55
\$6,014	\$74,615	\$87,181	\$19,907	\$4,293	\$151,649	\$54,020	\$95,247	\$107,011	\$1,295	56
	\$26,655	\$1,167		\$2,818	\$11,774	\$1,200		\$605	\$1,200	57
\$20,305	\$264,971	\$365,613	\$68,270	\$20,724	\$428,521	\$149,339	\$209,971	\$553,370	\$2,413	58
	3,770	32,215		95	8,782	500	17,600	5,236		59
	\$2,365	\$13,450		\$95	\$11,146	\$500	\$7,100	\$1,958		60
				213	446			272		61
				\$415	\$756			\$342		62
1,922	2,761	2,147	656	3,070	5,271	340	2,145	6,693		63
\$1,732	\$2,419	\$1,137	\$533	\$795	\$3,576	\$555	\$1,581	\$5,722		64
200	85	500			832	15	100	375		65
\$1,400	\$389	\$4,500			\$4,213	\$300	\$694	\$1,400		66
	154,752				540,000					67
	\$1,815				\$5,493					68
		2				4		1	2	69
		\$10				\$50		\$9	\$25	70
\$15,478	\$235,405	\$318,054	\$58,946	\$18,079	\$359,213	\$128,844	\$145,620	\$508,374	\$2,348	71
			\$6,540	\$230		\$4,633		\$125		72
\$449	\$12,240	\$7,371	\$2,230	\$215	\$12,637	\$4,672	\$18,072	\$15,626	\$40	73
\$215	\$10,338	\$8,360		\$345	\$8,883	\$2,035	\$36,056	\$16,225		74
\$1,031		\$12,731	\$21	\$550	\$22,604	\$7,950	\$848	\$3,589		

TABLE 17.—BRICK AND TILE—DETAILED SUMMARY,

		North Dakota.	Ohio.	Oklahoma.	Oregon.	Pennsylvania.	South Carolina.
75	Products:						
	Aggregate value.....	\$170,257	\$7,136,030	\$261,438	\$315,122	\$7,279,915	\$655,831
	Brick—						
76	Total—						
77	Thousands.....	20,679	725,793	33,241	34,530	1,010,498	124,130
	Value.....	\$169,897	\$5,415,604	\$241,221	\$290,677	\$7,144,971	\$644,901
	Common—						
78	Thousands.....	19,199	459,443	31,541	33,464	801,487	122,460
79	Value.....	\$142,646	\$2,675,314	\$225,866	\$259,239	\$4,942,845	\$629,201
	Sand-lime—						
80	Thousands.....		1,200			7,732	600
81	Value.....		\$8,750			\$68,786	\$4,800
	Red front (both pressed and wire cut)—						
82	Thousands.....	1,472	38,769	1,100	424	71,454	1,050
83	Value.....	\$26,074	\$340,707	\$9,800	\$12,690	\$674,281	\$10,700
	Fancy colored front (all except red front)—						
84	Thousands.....		43,783			50,344	
85	Value.....		\$515,724			\$607,277	
	Ornamental shaped (all not plain rectangular)—						
86	Thousands.....	8	11,087		550	3,177	20
87	Value.....	\$1,177	\$109,770		\$16,500	\$57,343	\$200
	Vitrified paving—						
88	Thousands.....		167,888	600		73,502	
89	Value.....		\$1,714,293	\$5,555		\$763,926	
	Fire brick—						
90	Thousands.....		3,373		92	802	
91	Value.....		\$48,046		\$2,248	\$10,441	
	Enameled brick—						
92	Thousands.....		250			2,000	
93	Value.....		\$3,000			\$20,072	
94	Drain tile.....	\$300	\$1,111,138		\$22,705	\$14,099	\$10,000
95	All other products.....	\$60	\$609,288	\$20,217	\$1,740	\$120,845	\$930
96	Power:						
97	Number of establishments reporting.....	10	504	17	25	309	45
	Total horsepower.....	432	33,430	1,224	766	31,271	2,531
	Owned—						
	Engines—						
	Steam—						
98	Number.....	11	575	19	25	373	52
99	Horsepower.....	372	32,247	1,224	764	29,744	2,256
	Gas or gasoline—						
100	Number.....	3	32		1		
101	Horsepower.....	35	1,018		2	1,227	
	Water wheels—						
102	Number.....		1			2	
103	Horsepower.....		25			100	
	Water motors—						
104	Number.....						
105	Horsepower.....						
	Electric motors—						
106	Number.....	1	10			3	
107	Horsepower.....	25	139			36	
108	Other power, horsepower.....					37	
	Rented—						
	Electric motors—						
109	Number.....		1			4	6
110	Horsepower.....		1			130	275
111	Other kind, horsepower.....						
112	Furnished to other establishments, horsepower.....					10	
	Machinery:						
	Clay grinding machines—						
113	Disintegrators.....	2	129	4	7	106	18
114	Dry pans.....	2	174	10	2	260	
115	All other.....	3	80	2	17	40	18
	Clay tempering machines—						
116	Ring pits.....		62		21	93	
117	Pug mills.....	5	218	11	12	264	53
118	Wet pans.....	1	12			12	
119	All other.....		9			8	1
	Molding machines—						
120	Soft mud.....	12	215	2	17	167	8
121	Stiff mud.....	2	154	8	9	143	34
122	Dry presses.....	2	54	13	3	49	8
123	Shape brick power presses.....		42	4		50	1
124	Hand presses.....	1	40	6	4	143	4
125	Sewer pipe presses.....		3			2	
126	Tile machines.....		277	1	10	5	
127	All other.....		214	1	12	150	14
128	Mold sanders.....	5	75		8	122	
	Kilns—						
129	Clamp.....	1	256	38	26	345	47
	Down draft—						
130	Round.....	1	1,060	9	18	485	27
131	Rectangular.....	2	315	7	8	287	9
132	Muffle.....		11			5	
133	Continuous.....		12			14	
134	All other.....	36	320	13	42	333	67
	Other machinery—						
135	Dryers.....		153			182	9
136	All other.....		90	3		76	7
137	Idle machinery.....	1	56	4	7	57	13

BY STATES AND TERRITORIES: 1905—Continued.

South Dakota.	Tennessee.	Texas.	Utah.	Vermont.	Virginia.	Washington.	West Virginia.	Wisconsin.	Wyoming.	
\$33,756	\$1,100,398	\$1,304,663	\$345,806	\$104,235	\$1,803,680	\$675,124	\$870,200	\$1,847,727	\$17,195	75
10,243	169,895	215,310	49,475	17,588	238,498	79,637	82,949	230,407	1,855	76
\$82,685	\$1,080,371	\$1,301,157	\$339,013	\$100,235	\$1,788,875	\$639,097	\$859,092	\$1,538,477	\$17,195	77
8,433	150,522	197,941	41,007	17,588	202,458	73,665	50,080	220,607	1,055	78
\$68,335	\$891,517	\$1,160,616	\$257,478	\$100,235	\$1,281,163	\$544,401	\$314,034	\$1,461,292	\$8,795	79
1,750	500	10,000			4,720	100		3,000		80
\$12,250	\$6,250	\$65,000			\$47,559	\$1,800		\$21,000		81
	10,900	5,830	7,648		15,290	3,332	600	4,470		82
	\$91,059	\$55,249	\$74,565		\$160,460	\$43,965	\$5,000	\$38,210		83
	1,443	1,263	820		13,083	1,403		2,330	800	84
	\$23,235	\$16,612	\$6,970		\$255,741	\$24,826		\$17,975	\$3,400	85
	16				418	33				86
	\$100	\$130			\$17,890	\$1,552				87
60	5,984	100			2,449	933	31,922			88
\$2,100	\$59,840	\$1,000			\$24,490	\$16,567	\$534,858			89
	530	170			80	171	347			90
	\$5,070	\$2,550			\$1,572	\$5,986	\$5,200			91
										92
	\$18,512				\$4,890	\$5,940		\$57,500		93
\$1,071	\$1,515	\$3,506	\$6,793	\$4,000	\$9,915	\$30,087	\$11,108	\$251,750		94
8	488	50	8	7	69	36	34	103	1	96
365	3,165	3,406	737	258	4,977	1,486	3,447	5,995	65	97
7	64	54	8	5	80	33	48	117	1	98
320	3,165	3,397	314	210	4,832	1,256	3,391	5,745	65	99
2				1	3		2	10		100
35				18	145		56	149		101
			2					1		102
			65					37		103
										104
										105
1		3						3		106
10		11						44		107
										108
			13	2		11				109
			358	30		230		20		110
										111
										112
5	22	22	5	1	47	30	20	63		113
	7	35	1		8	2	33	7	1	114
	11	8	2	1	14	14	4	17		115
7	17	27	2		30	5	1	44		116
7	37	82	69	2	52	35	38	67	9	117
	2	10	11		4	2	3	1		118
	3					2	3	7		119
2	30	21	6	10	29	18	17	83		120
7	23	17	5	2	38	27	26	37		121
	21	44	8		8	5	3	9	1	122
1	4	2	2		23	11	13	5		123
6	20	8	4	2	62	15	5	13		124
						1				125
	4		1		3	3				126
	44	150	86	5	45	13	15	20		127
1	9	4	1	2	17	4	9	92	4	128
								53		
7	111	185	35		161	64	37	120	3	129
4	40	22			24	14	146	27		130
3	34	20	48		50	3	24	41		131
	1				1					132
1	2	7	2		2	5		4		133
7	57	62	32	52	53	44	32	209	7	134
										135
1	19	4	2	2	27	22	39	17		136
8	8	16	1		80	4	9	7		137
	15	15	5	1	14	64	11	10		

MANUFACTURES.

TABLE 18.—POTTERY, TERRA COTTA, AND FIRE CLAY

	United States.	Alabama.	Arkansas.	California.	Colorado.	Connecticut.	District of Columbia.
1 Number of establishments.....	873	16	7	22	11	5	6
2 Capital:							
3 Total.....	\$110,926,018	\$445,445	\$23,934	\$3,484,004	\$832,306	\$288,344	\$343,095
4 Land.....	\$18,637,403	\$118,985	\$700	\$435,254	\$125,400	\$36,190	\$102,162
5 Buildings.....	\$34,947,500	\$126,369	\$3,800	\$1,195,524	\$232,150	\$84,647	\$157,618
6 Machinery, tools, and implements.....	\$21,165,402	\$107,971	\$10,500	\$741,934	\$235,760	\$96,531	\$25,064
7 Cash and sundries.....	\$36,175,713	\$92,120	\$8,934	\$1,111,292	\$238,996	\$70,976	\$58,251
8 Proprietors and firm members.....	550	19	3	10	4	2	10
9 Salaried officials, clerks, etc.:							
10 Total number.....	3,752	21	71	31	15	8	8
11 Total salaries.....	\$4,627,739	\$19,965	\$99,488	\$51,410	\$19,418	\$5,385	\$5,385
12 Officers of corporations—							
13 Number.....	763	8	17	10	8	8	8
14 Salaries.....	\$1,669,760	\$8,800	\$41,440	\$23,530	\$12,614		
15 General superintendents, managers, clerks, etc.—							
16 Total number.....	2,989	15	54	21	7	8	8
17 Total salaries.....	\$2,957,979	\$11,165	\$58,048	\$27,880	\$6,804	\$5,385	\$5,385
18 Men—							
19 Number.....	2,607	12	51	18	5	7	7
20 Salaries.....	\$2,775,848	\$10,125	\$56,548	\$24,940	\$5,920	\$4,969	\$4,969
21 Women—							
22 Number.....	382	3	3	3	2	1	1
23 Salaries.....	\$182,131	\$1,040	\$1,500	\$2,940	\$884	\$416	\$416
24 Wage-earners, including pieceworkers, and total wages:							
25 Greatest number employed at any one time during the year.....	63,666	368	28	1,019	600	166	130
26 Least number employed at any one time during the year.....	42,683	237	13	723	403	122	91
27 Average number.....	52,428	265	22	860	476	141	111
28 Total wages.....	\$25,177,665	\$86,968	\$7,869	\$555,426	\$268,421	\$61,416	\$50,852
29 Men 16 years and over—							
30 Average number.....	45,342	261	20	858	474	116	111
31 Wages.....	\$23,069,359	\$86,636	\$7,569	\$555,001	\$267,619	\$54,474	\$50,852
32 Women 16 years and over—							
33 Average number.....	5,953				2	21	
34 Wages.....	\$1,862,043				\$802	\$6,006	
35 Children under 16 years—							
36 Average number.....	1,133	4	2	2	4		
37 Wages.....	\$246,263	\$332	\$300	\$425	\$936		
38 Average number of wage-earners, including pieceworkers, employed during each month:							
39 Men 16 years and over—							
40 January.....	40,904	173	11	909	437	112	90
41 February.....	42,021	186	13	911	453	113	91
42 March.....	44,247	207	18	886	515	114	99
43 April.....	45,411	261	21	843	482	119	120
44 May.....	46,712	264	23	839	485	118	120
45 June.....	47,172	316	23	834	507	123	125
46 July.....	45,735	330	24	796	497	120	125
47 August.....	47,295	296	23	865	511	117	125
48 September.....	47,523	291	23	844	459	111	123
49 October.....	47,173	276	21	866	452	108	121
50 November.....	45,956	284	20	860	426	117	97
51 December.....	43,955	248	20	843	464	120	96
52 Women 16 years and over—							
53 January.....	5,634				2	13	
54 February.....	5,971				2	17	
55 March.....	6,105				2	18	
56 April.....	6,115				2	23	
57 May.....	5,980				2	27	
58 June.....	5,886				2	29	
59 July.....	5,275				2	32	
60 August.....	5,952				2	17	
61 September.....	6,130				2	19	
62 October.....	6,172				2	15	
63 November.....	6,199				2	21	
64 December.....	6,017				2	21	
65 Children under 16 years—							
66 January.....	967	1	2	2		4	
67 February.....	971	1	2	2		4	
68 March.....	1,033	2	2	2		4	
69 April.....	1,118	5	2	2		4	
70 May.....	1,183	6	2	2		4	
71 June.....	1,176	7	2	2		4	
72 July.....	1,154	6	2	2		4	
73 August.....	1,170	6	2	2		4	
74 September.....	1,182	7	2	2		4	
75 October.....	1,200	3	2	2		4	
76 November.....	1,209	2	2	2		4	
77 December.....	1,233	2	2	2		4	
78 Miscellaneous expenses:							
79 Total.....	\$7,656,053	\$18,221	\$824	\$146,417	\$56,178	\$13,294	\$9,494
80 Rent of works.....	\$111,053	\$220		\$564	\$4,182		\$1,560
81 Taxes.....	\$436,839	\$1,306	\$59	\$11,967	\$15,547	\$743	\$900
82 Rent of offices, interest, insurance, and all sundry expenses not hitherto included.....	\$7,007,680	\$16,695	\$765	\$133,486	\$36,449	\$12,551	\$7,034
83 Contract work.....	\$100,581			\$400			
84 Materials used:							
85 Total cost.....	\$16,591,462	\$78,367	\$3,640	\$396,238	\$296,310	\$38,762	\$22,114
86 Clay purchased—							
87 China (domestic)—							
88 Tons.....	46,641				1	200	
89 Cost.....	\$453,556				\$10	\$1,005	
90 China (foreign)—							
91 Tons.....	27,692			6			
92 Cost.....	\$354,931			\$175			
93 Ball (domestic)—							
94 Tons.....	21,596						
95 Cost.....	\$124,034						
96 Ball (foreign)—							
97 Tons.....	21,077			4			
98 Cost.....	\$205,737			\$146			
99 Stoneware—							
100 Tons.....	165,808	1,796	400	491	1,086		
101 Cost.....	\$255,913	\$2,601	\$320	\$1,450	\$2,400		
102 Slip—							
103 Tons.....	4,873	50	18	22	40		
104 Cost.....	\$35,112	\$616	\$200	\$628	\$400		

CLAY PRODUCTS.

911

PRODUCTS—DETAILED SUMMARY, BY STATES: 1905.

Georgia.	Illinois.	Indiana.	Iowa.	Kansas.	Kentucky.	Louisiana.	Maryland.	Massachusetts.	Michigan.	
21	45	38	7	4	21	5	16	25	6	1
\$890,771	\$6,607,832	\$3,836,667	\$136,910	\$235,392	\$1,517,792	\$45,450	\$1,147,521	\$1,591,612	\$116,752	2
\$160,843	\$1,176,621	\$473,725	\$10,200	\$21,230	\$212,253	\$16,500	\$229,584	\$294,687	\$25,200	3
\$292,425	\$1,892,787	\$1,037,045	\$64,660	\$91,874	\$406,968	\$8,000	\$339,168	\$435,954	\$22,000	4
\$234,484	\$1,341,173	\$857,697	\$32,850	\$48,945	\$293,248	\$6,800	\$255,389	\$273,364	\$23,450	5
\$203,019	\$2,197,251	\$1,468,200	\$29,200	\$73,343	\$605,323	\$14,150	\$323,380	\$587,607	\$46,102	6
19	34	35	9		14	7	14	22	4	7
37	260	146	7	15	80	1	58	55	15	8
\$48,170	\$329,355	\$183,179	\$7,960	\$18,197	\$92,301	\$675	\$54,920	\$60,609	\$9,900	9
16	43	32	4	1	26		12	9	2	10
\$30,025	\$127,190	\$61,029	\$3,500	\$6,000	\$43,585		\$16,220	\$15,588	\$1,010	11
21	217	114	3	14	54	1	46	40	13	12
\$18,145	\$202,165	\$122,150	\$4,460	\$12,197	\$48,716	\$675	\$38,700	\$45,021	\$8,950	13
30	196	99	2	13	49	1	44	40	11	14
\$17,745	\$192,829	\$115,596	\$4,250	\$11,872	\$47,088	\$675	\$38,140	\$41,759	\$8,556	15
1	21	15	1	1	5		2	0	2	16
\$400	\$9,336	\$6,554	\$210	\$325	\$1,628		\$560	\$3,262	\$394	17
707	2,976	2,416	130	168	1,624	45	1,152	704	244	18
458	1,951	1,553	48	95	1,017	36	688	496	174	19
592	2,416	2,019	78	131	1,312	36	925	567	203	20
\$165,706	\$1,243,702	\$980,967	\$41,017	\$55,763	\$455,590	\$11,730	\$389,071	\$293,958	\$101,459	21
576	2,370	1,702	73	127	1,226	31	764	497	202	22
\$163,744	\$1,227,110	\$919,665	\$39,233	\$54,892	\$441,300	\$11,262	\$345,448	\$272,709	\$101,309	23
	33	300	3	11	68		81	00		24
	\$11,798	\$57,317	\$984	\$416	\$10,600		\$29,080	\$18,954		25
16	13	17	2	2	18	5	80	10	1	26
\$1,962	\$4,794	\$3,985	\$800	\$455	\$3,690	\$468	\$14,543	\$2,295	\$150	27
522	1,934	1,431	51	106	1,131	26	683	501	176	28
525	1,982	1,439	45	99	1,152	26	721	503	172	29
566	2,157	1,646	48	110	1,265	28	867	501	178	30
571	2,246	1,555	60	128	1,193	35	890	493	200	31
601	2,399	1,634	72	135	1,314	34	820	510	222	32
645	2,518	1,785	73	143	1,248	34	779	501	243	33
628	2,383	1,701	76	144	1,263	33	633	491	234	34
632	2,549	1,818	91	130	1,236	34	668	491	225	35
577	2,639	1,870	131	137	1,218	34	774	514	213	36
551	2,688	1,883	116	135	1,255	33	817	511	215	37
557	2,577	1,875	87	137	1,233	28	775	480	176	38
537	2,368	1,787	81	126	1,204	27	741	468	170	39
	30	273	2	3	53		87	63		40
	31	275	2		68		97	66		41
	31	283	1		75		111	63		42
	31	289	1	2	63		111	64		43
	30	275	3	3	75		91	62		44
	31	299	3	3	65		91	62		45
	25	275	4	1	59		10	68		46
	39	317	4	1	70		20	67		47
	37	314	4	3	75		91	64		48
	37	314	4	2	75		97	51		49
	37	330	4	1	65		89	44		50
	37	356	4	4	73		77	46		51
14	11	9	2	1	18	5	72	8	1	52
14	11	18	2	2	18	5	77	7	1	53
14	11	18	2	2	18	5	88	7	1	54
15	11	18	2	2	18	5	95	7	1	55
16	11	20	2	2	18	5	88	10	1	56
17	11	20	2	2	15	5	84	10	1	57
17	15	20	2	2	19	5	69	16	1	58
17	15	20	2	2	19	5	64	14	1	59
17	15	20	2	2	20	5	83	9	1	60
17	15	19	2	3	17	5	85	12	1	61
17	15	19	2	2	18	5	81	12	1	62
17	15	17	2	2	18	5	74	8	1	63
17	15	15	2	2						
\$51,915	\$524,537	\$316,978	\$15,814	\$19,586	\$146,070	\$1,177	\$83,061	\$144,741	\$76,702	64
	\$878	\$1,520	\$443			\$540	\$4,447	\$5,974		65
\$4,028	\$18,019	\$16,548	\$649	\$1,040	\$5,495	\$64	\$11,625	\$8,897	\$1,775	66
\$47,812	\$450,522	\$298,910	\$14,722	\$18,546	\$140,575	\$573	\$66,989	\$119,382	\$74,927	67
75	\$55,118							\$10,488		68
\$144,292	\$732,106	\$645,969	\$28,530	\$36,821	\$347,315	\$7,590	\$137,680	\$174,834	\$43,397	69
2	25	1,909			1,800		596	301		70
\$33	\$316	\$24,105			\$8,073		\$8,375	\$3,338		71
		1,090					376	10		72
		\$12,883					\$4,428	\$172		73
	276	3,065			450			302		74
	\$1,684	\$13,703			\$1,595			\$3,463		75
	42	286	30				460			76
	\$700	\$3,342	\$120				\$3,722			77
140	\$4,994	5,570	9,203	1,280	6,235	800	75	1,873		78
\$250	\$42,890	\$7,104	\$8,370	\$2,931	\$9,836	\$1,200	\$94	\$5,078		79
11		75	37	25	94			22		80
\$198	\$1,368	\$388	\$427	\$239	\$923		\$10	\$125		81

TABLE 18.—POTTERY, TERRA COTTA, AND FIRE CLAY

		United States.	Alabama.	Arkansas.	California.	Colorado.	Connecticut.	District of Columbia.
Materials used—Continued.								
Clay purchased—Continued.								
82	Fire—							
83	Tons.....	1,827, 276	17, 713		32, 465	22, 772	7, 630	
	Cost.....	\$2, 151, 847	\$14, 098		\$78, 806	\$43, 372	\$5, 853	
84	Pipe—							
85	Tons.....	177, 110			16, 930	38, 814		
	Cost.....	\$173, 638			\$39, 205	\$38, 645		
86	Terra cotta—							
87	Tons.....	137, 703			5, 854	406		
	Cost.....	\$174, 621			\$3, 944	\$476		
88	Brick—							
89	Tons.....	183, 134			2, 908	55, 485	1, 105	
	Cost.....	\$166, 748			\$5, 548	\$36, 742	\$1, 104	
90	All other—							
91	Tons.....	509, 364	19, 419		10, 052	25		
	Cost.....	\$772, 932	\$3, 884		\$12, 918	\$150		
92	Sand—							
93	Tons.....	63, 339	187		320	145	1, 297	
	Cost.....	\$99, 608	\$262		\$960	\$224	\$973	
94	Flint (quartz)—							
95	Tons.....	58, 864	557		2	1	138	
	Cost.....	\$400, 549	\$2, 150		\$60	\$13	\$969	
96	Feldspar—							
97	Tons.....	40, 929			1	37	132	
	Cost.....	\$438, 585			\$72	\$132	\$1, 256	
98	Plaster—							
99	Tons.....	22, 512			367	22	1	
	Cost.....	\$184, 240			\$5, 775	\$220	\$25	
100	Salt—							
101	Tons.....	8, 302	116		384	200		27
	Cost.....	\$31, 611	\$864		\$1, 736	\$1, 200		\$115
102	Manganese—							
103	Pounds.....	485, 479			9, 478	50		
	Cost.....	\$11, 825			\$198	\$1		
104	Iron—							
105	Pounds.....	3, 458, 742						
	Cost.....	\$11, 216						
106	Lime—							
107	Barrels.....	11, 334	156	40	5	533		
	Cost.....	\$9, 612	\$122	\$50	\$20	\$288		
108	Liquid and coin gold.....	\$225, 624						
109	Oxide of lead, zinc, and cobalt.....	\$370, 941						
110	Packing materials (crates, hogsheads, etc.).....	\$848, 867	\$10	\$90	\$2, 912	\$330	\$742	\$20
111	Fuel.....	\$6, 563, 778	\$45, 318	\$2, 750	\$3, 514	\$4, 309	\$4, 150	\$120
112	Rent of power and heat.....	\$30, 018			\$181, 910	\$139, 343	\$11, 609	\$19, 717
113	Mill supplies.....	\$405, 998			\$4, 563	\$2, 822	\$726	
114	All other materials.....	\$1, 593, 785	\$2, 284	\$25	\$9, 835	\$7, 383	\$440	\$1, 086
115	Freight.....	\$496, 136	\$6, 158	\$25	\$17, 429	\$3, 275	\$1, 925	\$1, 055
	Products:				\$24, 434	\$14, 575	\$7, 985	\$1
116	Aggregate value.....	\$64, 200, 792	\$273, 393	\$20, 250	\$1, 761, 213	\$786, 818	\$144, 180	\$111, 453
117	Pottery—							
118	Total value.....	\$25, 831, 013	\$34, 366	\$13, 000	\$46, 910	\$46, 650	\$95, 075	\$12, 600
	Red earthenware.....	\$818, 195			\$24, 133		\$43, 500	\$12, 600
119	Stoneware—							
120	Gallons.....	67, 725, 234	637, 733	330, 000	95, 133	388, 000		
121	Value.....	\$3, 274, 914	\$32, 854	\$13, 000	\$7, 777	\$26, 500		
122	Yellow and Rockingham ware.....	\$206, 607				\$150		
	C. C. or cream colored ware and white granite ware, including semivitreous porcelain ware.....	\$9, 195, 703						
123	China (porcelain).....	\$3, 370, 627						
124	Bone china, Delft, and Belleek ware.....	\$108, 000						
125	Sanitary ware, including solid porcelain bath tubs, laundry tubs, etc.....	\$3, 932, 506			\$15, 000			
126	Porcelain electrical supplies.....	\$1, 500, 283						
127	Porcelain doorknobs and hardware trimmings.....	\$78, 596					\$38, 327	
128	All other pottery products.....	\$3, 345, 582	\$1, 512			\$20, 000	\$13, 248	
129	Terra cotta, fire, and other clay products—							
130	Total value.....	\$37, 854, 744	\$239, 027	\$7, 250	\$1, 714, 203	\$735, 413	\$49, 030	\$98, 853
	Architectural terra cotta.....	\$3, 773, 131			\$223, 000			
	Fireproofing, including terra cotta lumber, and hollow building tile or blocks—							
131	Tons.....	770, 421			12, 822	400		9, 144
132	Value.....	\$3, 701, 971			\$92, 141	\$3, 300		\$61, 913
133	Roofing, floor, and encaustic tile.....	\$2, 707, 772			\$25, 250			
134	Fire brick—							
135	Thousands.....	668, 643	9, 631	515	23, 453	3, 550	2, 000	
136	Value.....	\$11, 571, 830	\$127, 997	\$6, 500	\$296, 443	\$62, 863	\$43, 800	
	Drain tile.....	\$531, 526		\$500	\$9, 149	\$5, 824		\$3, 400
137	Sewer pipe—							
138	Tons.....	1, 333, 600	26, 500		58, 106	27, 938		3, 290
139	Value.....	\$8, 299, 809	\$101, 580		\$679, 804	\$306, 386		\$30, 440
	Electrical conduits.....	\$602, 682			\$12, 860			
	Brick—							
	Enameled—							
140	Thousands.....	8, 225						
141	Value.....	\$372, 604						
	Vitrified paving—							
142	Thousands.....	75, 090		25	25	6, 265		
143	Value.....	\$745, 954		\$250	\$875	\$53, 374		
144	Fancy or ornamental—							
145	Thousands.....	9, 945			3, 086	30		
	Value.....	\$249, 233			\$146, 026	\$600		
146	Red front, both pressed and wire cut—							
147	Thousands.....	36, 064			8, 700	700		
	Value.....	\$472, 032			\$99, 972	\$9, 900		
148	Sand-lime—							
149	Thousands.....	1, 328				500		
	Value.....	\$38, 846				\$14, 000		
150	Common—							
151	Thousands.....	132, 434	1, 700		5, 000	20, 509		
152	Value.....	\$801, 385	\$9, 450		\$22, 500	\$153, 514		
	All other terra cotta, fire, and other clay products. ¹	\$3, 985, 969			\$106, 183	\$125, 652	\$5, 230	\$3, 100
153	All other products.....	\$515, 035			\$100	\$4, 755	\$75	

¹ Including adobes, aquarium ornaments, art tile, assayers' furnaces, bakers' tile, cement blocks, chimney tops, clay crucibles, coke oven tile, fire cement, flat-tening stones, flue lining, furnace blocks, garden furniture, gas logs, glass tile, insulators, kiln tile, lot and grave markers, melting pots, mufflers, open-hearth runner

CLAY PRODUCTS.

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PRODUCTS—DETAILED SUMMARY, BY STATES: 1905—Continued.

Georgia.	Illinois.	Indiana.	Iowa.	Kansas.	Kentucky.	Louisiana.	Maryland.	Massachusetts.	Michigan.	
15,150	27,149	51,763		30	99,072	319	17,858	11,582	9	82
\$7,825	\$27,471	\$46,595		\$105	\$104,190	\$1,139	\$13,493	\$32,582	\$31	83
3,100		4,000			6,445					84
\$5,790		\$1,500			\$6,478					85
891	9,225	3,600				75	1,451	1,512		86
\$1,336	\$15,409	\$7,200				\$100	\$2,126	\$3,520		87
	1,162	100	250		1,150		100	500	1,200	88
	\$850	\$200	\$150		\$888		\$100	\$725	\$1,050	89
32	17,143	3,009	400		10,644	275	604		600	90
\$25	\$22,299	\$8,890	\$300		\$10,711	\$350	\$1,502		\$553	91
222	1,093	932	314	70	2,374	305	773	1,426	54	92
\$325	\$1,507	\$1,549	\$240	\$101	\$1,453	\$312	\$1,544	\$3,542	\$27	93
14	453	2,862	18	10	607		634	153		94
\$108	\$5,427	\$18,662	\$161	\$200	\$3,723		\$4,881	\$1,625		95
13	595	2,176	70	18	470		367	311		96
\$118	\$7,542	\$22,542	\$99	\$360	\$4,311		\$3,756	\$3,110		97
351	3,248	415	124	14	63	1	318	45	114	98
\$3,701	\$18,495	\$3,838	\$833	\$186	\$820	\$18	\$3,211	\$518	\$617	99
235	385	430		100	36			2		100
\$1,500	\$1,730	\$1,121		\$291	\$130			\$14		101
31,500	20,990	12,786			4,800		25,030	10,460		102
\$575	\$782	\$410			\$240		\$250	\$178		103
54,500	3,124,000				6,000					104
\$430	\$3,125				\$75					105
1,150	160			20						106
\$915	\$105			\$50						107
\$118	\$330	\$2,132			\$80		\$5,393	\$500		108
\$57	\$20,007	\$12,347	\$2,600	\$450	\$3,841		\$4,428	\$1,407		109
\$1,020	\$20,175	\$34,775	\$1,394	\$1,973	\$5,387	\$25	\$8,348	\$3,598	\$2,567	110
\$86,574	\$428,144	\$297,737	\$12,540	\$22,039	\$158,706	\$2,336	\$55,613	\$76,726	\$36,941	111
	\$3,739						\$196	\$650	\$25	112
\$7,974	\$16,508	\$12,284	\$401	\$1,043	\$5,533	\$245	\$4,128	\$3,636	\$730	113
\$9,451	\$72,125	\$92,546	\$16	\$6,853	\$13,134	\$1,755	\$12,082	\$20,720	\$726	114
\$15,989	\$19,378	\$20,116	\$360		\$7,188	\$110		\$9,607	\$130	115
\$479,927	\$3,256,312	\$2,643,139	\$78,449	\$181,392	\$1,246,555	\$30,954	\$851,729	\$718,255	\$289,919	116
\$24,477	\$865,460	\$763,281	\$72,349	\$40,500	\$152,410	\$704	\$398,700	\$293,643	\$40,189	117
\$5,151	\$16,850	\$2,700	\$9,200		\$23,000	\$704	\$12,700	\$181,771	\$20,600	118
312,000	16,180,879	1,705,100	1,089,433	592,000	2,319,800			590,855		119
\$19,320	\$723,971	\$71,501	\$63,149	\$40,500	\$129,410			\$36,980		120
	\$26,850									121
		\$211,417					\$166,000	\$66,000		122
								\$5,000		123
		\$415,613								124
		\$45,000								125
\$6	\$97,789	\$17,050					\$220,000	\$3,892	\$19,589	126
\$455,450	\$2,369,759	\$1,878,658	\$5,750	\$140,892	\$1,094,145	\$30,250	\$421,479	\$424,012	\$249,730	127
\$102,398	\$804,554	\$38,000		\$500			\$34,840	\$10,846		128
3,000	66,314	116,296		570			2,437	18,477	133	131
\$18,000	\$343,805	\$558,150		\$3,988			\$14,621	\$92,385	\$1,200	132
\$59,984	\$241,563	\$482,113		\$32,000	\$214,124			\$89,543		133
1,701	12,858	15,324	10	18	36,570		16,513	3,603		134
\$24,008	\$175,616	\$168,692	\$150	\$210	\$664,024		\$290,482	\$103,228		135
\$6,000	\$170,635	\$59,776		\$3,825	\$1,800				\$83,110	136
21,800	76,327	45,597		28,260	22,642				51,216	137
\$174,000	\$391,453	\$257,618		\$98,915	\$118,458				\$165,420	138
		\$14,860		\$1,454						139
	1,283				2,237					140
	\$83,806				\$48,492					141
7,000					10					142
\$63,000					\$240					143
	1,158						1,300			144
	\$11,611						\$41,136			145
					2,305					146
					\$23,050					147
										148
										149
	813	982	700		471		800			150
	\$4,428	\$5,843	\$5,600		\$2,821		\$5,600			151
\$8,060	\$142,288	\$293,606			\$21,136	\$30,250	\$34,800	\$128,010		152
	\$21,093	\$1,200	\$350				\$31,550	\$600		153

brick, radial chimney brick, refractory shapes, retorts, saggers, salt glazed building brick, scorifiers, silica brick, stone pumps, tank blocks, tile dental plates, toy marbles, wall coping, etc.

TABLE 18.—POTTERY, TERRA COTTA, AND FIRE CLAY

		United States.	Alabama.	Arkansas.	California.	Colorado.	Connecticut.	District of Columbia.
154	Power:							
155	Number of establishments reporting.....	751	7	1	18	10	4	4
	Total horsepower.....	107,755	805	25	2,282	2,108	145	295
	Owned—							
	Engines—							
156	Steam—							
157	Number.....	1,082	7	1	18	16	3	5
	Horsepower.....	99,086	795	25	2,011	2,027	129	291
158	Gas or gasoline—							
159	Number.....	91	2		3			1
	Horsepower.....	3,165	10		19			4
160	Water wheels—							
161	Number.....	4						
	Horsepower.....	355						
162	Water motors—							
163	Number.....							
	Horsepower.....							
164	Electric motors—							
165	Number.....	191			9		3	
166	Horsepower.....	2,837			87		16	
	Other power, horsepower.....	112						
	Rented—							
167	Electric motors—							
168	Number.....	74			4	4		
169	Horsepower.....	1,847			165	81		
170	Other kind, horsepower.....	353						
	Furnished to other establishments, horsepower.....	30						
	Machinery and kilns:							
	Pottery—							
171	Disintegrators (blunger).....	491			4	4	1	
172	Agitators.....	480			6	1	1	
173	Slip pumps.....	517	3		7	5	1	
174	Laws.....	337	1		1	2	1	
	Clay presses—							
175	Iron.....	461			6	2		
176	Wood.....	81	1				1	1
	Pug mills—							
177	Regular.....	438	10		9	3	4	2
178	Sagger.....	1,179	1					
179	Wad mills.....	189					1	
180	Jiggers.....	1,490	1		6	5	10	2
181	Batters.....	428						
182	Dry presses.....	642					15	
183	Polishers.....	89				1		
184	Lathes.....	540	10		10	3	1	
185	All other machines.....	624	7	2	9	6	1	3
	Kilns—							
186	Up draft.....	1,085	2	2	3	1	1	2
187	Down draft.....	869	20	1	42	9	5	1
	Muffle—							
188	Large.....	171			3			
189	Decorating.....	388				1		
190	All other.....	60	5				5	
	Terra cotta, tile, and brick—							
	Clay grinding machines—							
191	Disintegrators.....	172	1		2		2	3
192	Dry pans.....	565	6	1	25	18	2	
193	All other.....	125	1	1	1			1
	Clay tempering machines—							
194	Ring pits.....	71			4			
195	Pug mills.....	448	4	1	11	12	3	5
196	Wet pans.....	539	6		22	7		
197	All other.....	78			1			
	Molding machines—							
198	Soft mud.....	129	1	1				
199	Stiff mud.....	202	3	1		8		1
200	Dry presses.....	155	4		12	7		
201	Shape brick power presses.....	156		1	13	7		
202	Hand presses.....	850	5		23	29	7	
203	Sewer pipe presses.....	198	2		15	5		4
204	Tile machines.....	144		1	3	1		2
205	All other.....	200					1	
206	Mold sanders.....	74	1					
207	All other machinery.....	88			1			
	Kilns—							
208	Clamp.....	206	5			22		
	Down draft—							
209	Round.....	2,426	24	3	73	68	5	16
210	Rectangular.....	939	1		10	5		
211	Muffle.....	143			11			
212	Continuous.....	33						
213	All other.....	249		1	3	2	1	
214	Dryers.....	431	7		5	4	2	
215	Idle machinery.....	262	1		8	16		

CLAY PRODUCTS.

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PRODUCTS—DETAILED SUMMARY, BY STATES: 1905—Continued.

Georgia.	Illinois.	Indiana.	Iowa.	Kansas.	Kentucky.	Louisiana.	Maryland.	Massachusetts.	Michigan.	
7 2,075	35 6,112	36 5,498	6 280	4 560	17 2,799	5 101	15 1,484	20 1,241	6 372	154 155
14 2,055	57 5,100	53 5,346	5 268	3 440	29 2,786	6 101	18 1,474	24 1,165	5 362	156 157
	2 15	1 40	2 12	2 120	1 8		1 6	2 16		158 159
	2 275									160 161
										162 163
1 20	20 197 70	6 111 1						1 25		164 165 166
	6 177 275				1 5		3 3	4 35	1 10	167 168 169 170
11 1	7 20 37 9	28 29 21 18	6 2 3 1	1 4 3 1	9 5 14 4		9 12 9 6	6 1 5 1		171 172 173 174
1 2	24 1	18 1	5 1	2 1	9 1		6 5	3 3		175 176
9 3	19 2 1 115	10 6 6 25 32 91	6 1 1 15	1 1 1 8	5 3 2 13	1 3 3 5	7 3 3 29	13 2 3 25	2 5	177 178 179 180 181 182
4	17 37	17 13	3 1	8 1	14 8	5 1	2 3 8	1 9 6		183 184 185
15 12	16 68	39 59	2 11	4 4	25 23	1 1	22 1	14 12	2 3	186 187
1 1	2 1 2	18 9 1	1 1 1		1 1 1		4 7			188 189 190
3 1 7	2 32 1	14 30 8		3 3	5 12 11	1 1	3 8 1	4 7 4		191 192 193
3 10 9 2	3 15 21 12	4 34 8	1 2 1	2 3 1	1 3 4	4 21 4	5 4 5	9 10 2 1	1 4	194 195 196 197
2 1	2 9 8 3	2 7 1 1	1 1 1		1 6 2	1 2 76	3 1 2	1 4 15	1 10 6 1	198 199 200 201
4 4 6 5 1 1	8 12 18 2	2 10 19 1	1 1 3	1 4	3 2 13	2 1 9	33 1 1	2 2 5	1 2 6	202 203 204 205 206 207
	15	6		2			2	14		208
52 5	137 40 33 3	143 6	1	12 4	82 25	2	11 23 1	12 15 5	36	209 210 211
7 1 3 3	3 11 36 3	33 24 6			1	2	1 6	8 5 10 9		212 213 214 215

TABLE 18.—POTTERY, TERRA COTTA, AND FIRE CLAY

		Minnesota.	Missouri.	New Jersey.	New York.	North Carolina.	Ohio.	Oregon.
1	Number of establishments.....	4	33	90	43	5	205	3
2	Capital:							
3	Total.....	\$996,336	\$5,378,074	\$21,047,395	\$5,111,181	\$91,125	\$26,360,319	\$176,077
4	Land.....	\$169,790	\$907,868	\$3,561,420	\$883,169	\$7,230	\$3,525,324	\$40,800
5	Buildings.....	\$274,363	\$1,609,591	\$6,368,505	\$1,279,553	\$12,485	\$8,575,764	\$33,600
6	Machinery, tools, and implements.....	\$195,684	\$973,338	\$3,426,119	\$1,116,029	\$10,470	\$4,709,551	\$43,700
7	Cash and sundries.....	\$356,499	\$1,887,277	\$7,691,351	\$1,532,430	\$60,940	\$9,549,680	\$58,477
8	Proprietors and firm members.....	1	18	42	28	7	106	1
9	Salaried officials, clerks, etc.:—							
10	Total number.....	18	178	648	256	5	1,047	7
11	Total salaries.....	\$34,090	\$251,014	\$842,773	\$328,073	\$12,000	\$1,176,748	\$11,050
12	Officers of corporations—							
13	Number.....	5	34	123	50	2	212	3
14	Salaries.....	\$21,800	\$75,880	\$314,520	\$132,725	\$6,000	\$396,950	\$7,800
15	General superintendents, managers, clerks, etc.—							
16	Total number.....	13	144	525	206	4	835	1
17	Total salaries.....	\$12,290	\$175,134	\$528,253	\$195,348	\$6,000	\$779,798	\$3,250
18	Men—							
19	Number.....	11	137	475	171	4	668	2
20	Salaries.....	\$10,750	\$170,754	\$503,984	179,829	\$6,000	\$702,473	\$2,400
21	Women—							
22	Number.....	2	7	50	35	—	167	2
23	Salaries.....	\$1,540	\$4,380	\$24,269	\$15,519	—	\$77,325	\$860
24	Wage-earners, including pieceworkers, and total wages:							
25	Greatest number employed at any one time during the year.....	342	2,911	11,069	3,228	123	18,699	90
26	Least number employed at any one time during the year.....	270	2,207	7,703	1,939	82	13,301	30
27	Average number.....	313	2,532	9,487	2,695	84	15,919	56
28	Total wages.....	\$185,366	\$1,245,605	\$4,722,010	\$1,333,463	\$19,648	\$7,676,782	\$36,600
29	Men 16 years and over—							
30	Average number.....	313	2,504	8,261	2,270	79	12,456	55
31	Wages.....	\$185,366	\$1,236,462	\$4,373,427	\$1,208,283	\$19,035	\$6,543,232	\$36,450
32	Women 16 years and over—							
33	Average number.....	—	5	958	407	—	3,349	—
34	Wages.....	—	\$1,280	\$286,132	\$123,144	—	\$1,108,631	—
35	Children under 16 years—							
36	Average number.....	—	23	268	18	5	114	1
37	Wages.....	—	\$7,863	\$62,451	\$2,036	\$613	\$24,919	\$150
38	Average number of wage-earners, including pieceworkers, employed during each month:							
39	Men 16 years and over—							
40	January.....	274	2,441	7,415	2,185	3	11,409	24
41	February.....	275	2,467	7,548	2,137	74	12,007	39
42	March.....	290	2,572	7,910	2,255	76	12,278	45
43	April.....	324	2,562	8,167	2,192	76	12,548	51
44	May.....	336	2,499	8,354	2,279	78	12,852	53
45	June.....	336	2,468	8,505	2,361	101	12,921	66
46	July.....	336	2,472	8,685	2,204	103	12,107	66
47	August.....	335	2,528	8,672	2,317	102	13,117	73
48	September.....	332	2,567	8,688	2,358	104	13,028	74
49	October.....	331	2,510	8,691	2,336	80	12,753	64
50	November.....	297	2,478	8,367	2,368	77	12,572	54
51	December.....	290	2,484	8,100	2,268	74	11,880	51
52	Women 16 years and over—							
53	January.....	—	2	972	409	—	3,124	—
54	February.....	—	2	978	429	—	3,366	—
55	March.....	—	6	993	418	—	3,425	—
56	April.....	—	6	979	413	—	3,433	—
57	May.....	—	6	964	412	—	3,345	—
58	June.....	—	6	949	407	—	3,290	—
59	July.....	—	6	937	297	—	2,954	—
60	August.....	—	6	934	394	—	3,449	—
61	September.....	—	5	938	411	—	3,468	—
62	October.....	—	5	939	420	—	3,497	—
63	November.....	—	5	965	452	—	3,484	—
64	December.....	—	5	948	422	—	3,353	—
65	Children under 16 years—							
66	January.....	—	20	245	26	—	102	—
67	February.....	—	20	245	26	3	99	—
68	March.....	—	22	258	26	4	100	—
69	April.....	—	22	276	15	5	105	—
70	May.....	—	22	291	16	5	110	—
71	June.....	—	24	286	16	7	110	—
72	July.....	—	25	276	17	7	128	—
73	August.....	—	24	277	17	7	137	—
74	September.....	—	27	272	17	7	136	—
75	October.....	—	24	273	12	5	121	—
76	November.....	—	22	266	15	5	112	—
77	December.....	—	24	251	13	5	108	—
78	Miscellaneous expenses:							
79	Total.....	\$46,434	\$430,253	\$1,210,464	\$454,536	\$6,514	\$2,194,882	\$14,924
80	Rent of works.....	—	\$7,085	\$17,315	\$24,497	\$30	\$7,867	—
81	Taxes.....	\$5,391	\$30,813	\$66,142	\$29,137	\$469	\$122,651	\$1,562
82	Rent of offices, interest, insurance, and all sundry expenses not hitherto included.....	\$41,043	\$392,355	\$1,126,957	\$394,096	\$6,015	\$2,064,114	\$6,362
83	Contract work.....	—	—	\$50	\$6,806	—	\$250	\$7,000
84	Materials used:							
85	Total cost.....	\$194,864	\$751,745	\$2,955,803	\$872,259	\$25,626	\$4,823,023	\$44,136
86	Clay purchased—							
87	China (domestic)—							
88	Tons.....	—	90	8,083	1,754	—	24,560	—
89	Cost.....	—	\$675	\$73,912	\$17,642	—	\$243,447	—
90	China (foreign)—							
91	Tons.....	—	13	6,412	1,873	—	14,286	16
92	Cost.....	—	\$160	\$76,547	\$27,542	—	\$185,099	\$176
93	Ball (domestic)—							
94	Tons.....	—	449	4,512	586	—	11,025	—
95	Cost.....	—	\$1,088	\$34,938	\$3,892	—	\$57,261	—
96	Ball (foreign)—							
97	Tons.....	20	—	4,546	855	—	11,630	—
98	Cost.....	\$320	—	\$42,786	\$8,781	—	\$114,026	—
99	Stoneware—							
100	Tons.....	17,385	226	17,078	3,948	211	39,742	850
101	Cost.....	\$18,648	\$413	\$54,205	\$6,271	\$420	\$55,113	\$3,400
102	Slip—							
103	Tons.....	10	37	177	96	1	2,910	—
104	Cost.....	\$60	\$482	\$1,250	\$412	\$10	\$17,892	—

CLAY PRODUCTS.

917

PRODUCTS—DETAILED SUMMARY, BY STATES: 1905—Continued.

Pennsylvania.	South Carolina.	Tennessee.	Texas.	Utah.	Virginia.	Washington.	West Virginia.	Wisconsin.	All other states. ¹	
158	6	8	22	6	3	6	17	4	8	1
\$25,706,824	\$97,438	\$185,581	\$178,484	\$90,938	\$121,251	\$987,290	\$2,267,416	\$24,900	\$561,562	2
\$5,573,402	\$3,500	\$13,856	\$20,135	\$19,900	\$450	\$98,375	\$300,400	\$4,750	\$68,000	3
\$9,323,917	\$27,050	\$43,590	\$27,532	\$21,400	\$28,000	\$171,755	\$700,281	\$8,975	\$50,150	4
\$4,994,150	\$38,800	\$53,210	\$52,019	\$25,888	\$49,000	\$317,925	\$453,837	\$7,590	\$112,932	5
\$5,815,355	\$28,088	\$74,925	\$78,798	\$23,750	\$43,801	\$399,235	\$812,898	\$3,585	\$330,480	6
87	4	7	24	3	4	1	5	2	4	7
619	6	14	11	5	6	19	71	3	18	8
\$737,908	\$4,800	\$19,265	\$10,260	\$6,090	\$4,683	\$26,476	\$134,695	\$3,060	\$23,762	9
116	2	3	1	1	1	4	17	-----	3	10
\$228,403	\$1,800	\$5,600	\$1,800	\$1,500	\$333	\$7,200	\$74,818	-----	\$2,100	11
503	4	11	10	4	5	15	54	3	15	12
\$509,505	\$3,000	\$13,665	\$8,460	\$4,590	\$4,350	\$19,276	\$59,877	\$3,060	\$21,662	13
465	4	11	10	3	5	14	42	8	14	14
\$489,651	\$3,000	\$13,665	\$8,460	\$4,110	\$4,350	\$18,676	\$52,532	\$3,060	\$21,142	15
38	-----	-----	-----	1	-----	1	12	-----	1	16
\$19,854	-----	-----	-----	\$480	-----	\$600	\$7,345	-----	\$520	17
11,645	110	329	296	46	132	199	1,538	20	414	18
6,958	60	268	192	29	49	156	1,047	10	277	19
8,669	88	297	218	34	81	162	1,270	12	357	20
\$3,979,298	\$19,573	\$127,987	\$91,278	\$19,877	\$17,421	\$113,543	\$633,559	\$5,270	\$180,470	21
7,889	81	296	215	33	61	162	891	12	356	22
\$3,780,856	\$18,873	\$127,894	\$90,654	\$19,825	\$14,495	\$113,543	\$516,526	\$5,270	\$180,345	23
307	-----	-----	-----	6	-----	-----	351	-----	-----	24
\$91,799	-----	-----	-----	\$2,000	-----	-----	\$113,100	-----	-----	25
473	7	1	8	1	14	-----	28	-----	-----	26
\$106,643	\$700	\$98	\$624	\$52	\$926	-----	\$3,933	-----	\$125	27
6,937	70	270	215	27	64	166	784	9	318	28
7,055	60	283	212	22	50	153	870	9	329	29
7,510	65	292	243	26	68	151	921	9	351	30
8,114	87	291	210	35	75	158	935	9	360	31
8,413	93	295	215	28	61	166	996	14	360	32
8,318	95	287	220	32	65	166	951	16	367	33
8,165	94	287	219	37	61	166	856	15	363	34
8,151	90	308	214	41	59	178	935	10	351	35
8,276	88	317	208	39	63	181	921	13	365	36
8,187	93	306	220	37	57	160	908	11	383	37
7,958	76	304	204	34	59	159	847	10	366	38
7,584	61	301	200	38	50	140	768	10	359	39
232	-----	-----	-----	-----	6	-----	363	-----	-----	40
246	-----	-----	-----	-----	6	-----	386	-----	-----	41
292	-----	-----	-----	-----	6	-----	381	-----	-----	42
308	-----	-----	-----	-----	6	-----	384	-----	-----	43
297	-----	-----	-----	-----	6	-----	383	-----	-----	44
300	-----	-----	-----	-----	6	-----	353	-----	-----	45
281	-----	-----	-----	-----	6	-----	316	-----	-----	46
300	-----	-----	-----	-----	6	-----	326	-----	-----	47
340	-----	-----	-----	-----	6	-----	347	-----	-----	48
341	-----	-----	-----	-----	6	-----	367	-----	-----	49
361	-----	-----	-----	-----	6	-----	333	-----	-----	50
390	-----	-----	-----	-----	6	-----	273	-----	-----	51
371	8	2	3	1	14	-----	24	-----	1	52
375	7	1	3	1	5	-----	30	-----	1	53
395	7	1	3	1	11	-----	28	-----	1	54
458	8	1	3	1	9	-----	27	-----	1	55
490	9	1	3	1	18	-----	27	-----	1	56
496	8	1	3	1	18	-----	22	-----	1	57
475	8	1	3	1	12	-----	22	-----	1	58
400	7	1	3	1	22	-----	27	-----	1	59
470	7	1	3	1	20	-----	30	-----	1	60
516	6	1	3	1	12	-----	36	-----	1	61
549	5	1	3	1	15	-----	34	-----	1	62
615	4	1	3	1	12	-----	29	-----	1	63
\$1,152,866	\$4,784	\$54,899	\$73,664	\$13,123	\$3,160	\$56,103	\$200,990	\$3,381	\$110,067	64
\$16,229	\$238	\$102	\$190	-----	\$300	-----	-----	\$80	\$16,892	65
\$62,556	\$314	\$1,066	\$835	\$405	\$100	\$3,514	\$8,185	\$138	\$4,809	66
\$1,057,722	\$3,232	\$53,731	\$72,639	\$9,593	\$2,860	\$52,589	\$192,805	\$3,163	\$88,366	67
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	68
\$16,359	\$1,000	-----	-----	\$3,035	-----	-----	-----	-----	-----	69
\$2,909,408	\$13,871	\$79,194	\$70,351	\$29,176	\$30,293	\$120,723	\$345,962	\$3,267	\$187,796	70
4,416	-----	-----	-----	-----	200	-----	704	-----	2,000	71
\$37,809	-----	-----	-----	-----	\$1,050	-----	\$6,266	-----	\$27,500	72
561	-----	-----	-----	-----	200	-----	2,859	-----	-----	73
\$6,889	-----	-----	-----	-----	\$2,200	-----	\$38,660	-----	-----	74
742	-----	30	-----	-----	-----	-----	159	-----	-----	75
\$4,210	-----	\$1,200	-----	-----	-----	-----	\$1,000	-----	-----	76
475	-----	-----	-----	-----	-----	-----	2,679	-----	50	77
\$4,416	-----	-----	-----	-----	-----	-----	\$26,793	-----	\$585	78
8,298	-----	8,242	3,600	-----	-----	1,000	633	-----	602	79
\$16,643	-----	\$9,156	\$2,153	-----	-----	\$3,000	747	-----	\$1,220	80
783	18	88	66	-----	-----	5	52	-----	15	81
\$6,239	\$275	\$995	\$1,015	-----	-----	\$50	\$534	-----	\$316	82

¹Includes establishments distributed as follows: Maine, 2; Mississippi, 2; Montana, 1; New Hampshire, 2; Vermont, 1.

TABLE 18.—POTTERY, TERRA COTTA, AND FIRE CLAY

	Minnesota.	Missouri.	New Jersey.	New York.	North Carolina.	Ohio.	Oregon.
Materials used—Continued.							
Clay purchased—Continued.							
Fire—							
82 Tons.....		174,986	147,440	48,849		538,013	
83 Cost.....		\$161,768	\$245,860	\$99,122		\$345,410	
Pipe—							
84 Tons.....		20,540				52,876	
85 Cost.....		\$18,486				\$17,062	
Terra cotta—							
86 Tons.....		4,746	59,990	26,957		2,295	
87 Cost.....		\$5,067	\$61,832	\$48,787		\$1,444	
Brick—							
88 Tons.....		22,627	3,273	100		28,229	
89 Cost.....		\$17,042	\$4,735	\$150		\$38,100	
All other—							
90 Tons.....	42,300	90,604	33,464	16,520		120,682	10,000
91 Cost.....	\$42,380	\$71,610	\$46,797	\$16,759		\$112,726	\$13,000
Sand—							
92 Tons.....	300	4,466	7,727	3,943		6,848	15
93 Cost.....	\$240	\$2,980	\$15,598	\$6,488		\$10,604	\$20
Flint (quartz)—							
94 Tons.....	35	9	13,161	2,187		31,274	-3
95 Cost.....	\$385	\$67	\$100,964	\$22,157		\$193,932	\$66
Feldspar—							
96 Tons.....	190	51	12,719	2,231		18,106	23
97 Cost.....	\$3,040	\$669	\$125,661	\$23,791		\$201,819	\$665
Plaster—							
98 Tons.....	148	455	5,998	3,220		4,739	20
99 Cost.....	\$2,407	\$2,478	\$50,411	\$24,460		\$48,714	\$320
Salt—							
100 Tons.....		713	348	112	1	3,224	45
101 Cost.....		\$2,429	\$1,420	\$723	\$13	\$8,632	\$225
Manganese—							
102 Pounds.....		54,085	184,866	70,800		54,168	1,000
103 Cost.....		\$809	\$4,721	\$1,756		\$1,515	\$250
Iron—							
104 Pounds.....		15,835	155,000			2,407	
105 Cost.....		\$282	\$4,277			\$101	
Lime—							
106 Barrels.....			71			631	
107 Cost.....			\$14	\$58		\$2,086	
Liquid and coin gold.....			\$30,766	\$8,064		\$148,163	
109 Oxide of lead, zinc, and cobalt.....	\$2,900	\$71	\$78,765	\$9,988		\$199,579	\$293
110 Packing materials (crates, hogsheds, etc.).....	\$500	\$4,598	\$161,853	\$32,457	\$535	\$442,480	\$314
111 Fuel.....	\$120,750	\$360,144	\$1,179,976	\$302,361	\$20,830	\$1,611,654	\$21,438
112 Rent of power and heat.....		\$300	\$7,912	\$2,680		\$3,931	
113 Mill supplies.....	\$2,459	\$25,532	\$98,872	\$18,553	\$205	\$85,222	\$2,009
114 All other materials.....	\$775	\$74,494	\$386,375	\$167,921	\$5	\$521,288	\$1,960
115 Freight.....		\$100	\$65,356	\$21,444	\$3,608	\$155,723	
Products:							
116 Aggregate value.....	\$562,726	\$3,083,406	\$11,717,103	\$3,288,891	\$106,437	\$18,550,840	\$129,886
Pottery—							
117 Total value.....	\$247,633	\$28,470	\$6,462,624	\$1,368,094	\$6,427	\$11,904,210	\$27,480
118 Red earthenware.....		\$8,340	\$30,634	\$31,275	\$40	\$181,736	\$4,700
Stoneware—							
119 Gallons.....	5,630,337	422,102	916,500	554,360	113,490	24,006,285	360,000
120 Value.....	\$241,107	\$20,130	\$58,819	\$48,748	\$6,347	\$1,040,378	\$22,500
121 Yellow and Rockingham ware.....				\$25,000		\$106,340	
122 C. C. or cream colored ware and white granite ware, including semivitreous porcelain ware.			\$1,290,768	\$195,675		\$6,167,494	
China (porcelain).....			\$361,360	\$499,485		\$2,279,374	
123 Bone china, Delft, and Belleek ware.....			\$108,000				
124 Sanitary ware, including solid porcelain bath tubs, laundry tubs, etc.			\$3,006,406	\$46,804		\$197,225	
125 Porcelain electrical supplies.....			\$328,524	\$452,019		\$584,243	
126 Porcelain doorknobs, and hardware trimmings.....			\$58,825	\$10,771		\$9,000	
127 All other pottery products.....	\$6,526		\$1,219,288	\$58,317	\$40	\$1,338,420	\$280
Terra cotta, fire, and other clay products—							
128 Total value.....	\$315,093	\$2,822,293	\$5,185,095	\$1,911,752	\$100,010	\$6,614,269	\$102,406
129 Architectural terra cotta.....		\$185,623	\$1,216,400	\$815,893			
130 Fireproofing, including terra cotta lumber, and hollow building tile or blocks—							
131 Tons.....	6,750	24,563	262,620	38,032		158,560	1,000
132 Value.....	\$27,000	\$190,922	\$1,266,969	\$232,507		\$577,014	\$15,000
133 Roofing, floor, and encaustic tile.....		\$64,539	\$245,518	\$48,665		\$971,785	
Fire brick—							
134 Thousands.....		38,834	31,057	13,989		84,253	530
135 Value.....		\$640,133	\$709,396	\$400,321	\$10	\$1,240,826	\$10,750
136 Drain tile.....	\$2,477	\$45,983	\$23,537	\$19,745	\$5,000	\$63,152	\$8,756
Sewer pipe—							
137 Tons.....	30,000	99,479	1,760	29,456	12,000	522,199	20,000
138 Value.....	\$285,616	\$792,710	\$20,352	\$143,738	\$95,000	\$2,939,772	\$60,000
139 Electrical conduits.....		\$20,000	\$331,020	\$47,121		\$167,200	
Brick—							
140 Enameled—							
141 Thousands.....			3,530				
Value.....			\$193,355				
Vitrified paving—							
142 Thousands.....		799	1,873	1,178		21,846	400
143 Value.....		\$10,638	\$29,668	\$15,372		\$200,846	\$6,000
Fancy or ornamental—							
144 Thousands.....						3,265	
145 Value.....						\$39,372	
Red front, both pressed and wire cut—							
146 Thousands.....			24,299				
147 Value.....			\$338,352				
Sand lime—							
148 Thousands.....							
149 Value.....							
Common—							
150 Thousands.....		770	71,729	14,280		3,213	250
151 Value.....		\$5,390	\$406,334	\$88,398		\$18,858	\$1,600
152 All other terra cotta, fire, and other clay products.....		\$866,355	\$404,194	\$99,992		\$395,444	\$300
153 All other products.....		\$232,643	\$69,384	\$9,045		\$32,361	

PRODUCTS—DETAILED SUMMARY, BY STATES: 1905—Continued.

Pennsylvania.	South Carolina.	Tennessee.	Texas.	Utah.	Virginia.	Washington.	West Virginia.	Wisconsin.	All other states.	
591,200		1,970	1,450	4,720		12,000	419		2,717	82
\$386,808		\$7,880	\$1,465	\$7,990		\$12,000	\$1,623		\$6,361	83
5,050				3,120					26,235	84
\$3,180				\$6,240					\$37,052	85
18,005						2,196		500		86
\$20,434						\$2,196		\$750		87
59,697	50	50	80					259	4,799	88
\$51,210	\$20	\$60	\$32					\$259	\$7,783	89
84,464		10,444	100			33,601	3,106		1,876	90
\$347,348		\$10,444	\$200			\$33,601	\$14,608		\$1,877	91
28,471		200	11	515	250		242	2	837	92
\$47,521		\$237	\$7	\$1,015	\$400		\$616	\$2	\$852	93
2,952		34	20		200	6	3,444		90	94
\$18,601		\$427	\$610		\$1,500	\$208	\$22,753		\$900	95
1,354		77	92		250	20	1,606		20	96
\$13,633		\$1,031	\$2,415		\$2,250	\$646	\$18,922		\$235	97
2,033		92	23			19	504		176	98
\$9,034		\$759	\$269			\$275	\$5,829	\$14	\$1,013	99
958		100	152	507		165			62	100
\$4,680		\$516	\$561	\$2,576		\$728			\$407	101
4,936			500	30						102
\$128			\$10	\$2						103
1,000			100,000							104
\$25			\$2,900							105
8,181			6				29		349	106
\$5,503			\$27				\$25		\$349	107
\$6,709							\$23,314		\$55	108
\$14,220		\$1,347	\$700	\$32	\$800	\$260	\$12,793		\$52	109
\$64,896		\$1,238	\$768		\$1,250	\$762	\$42,351		\$3,410	110
\$1,021,937	\$11,515	\$36,186	\$47,673	\$9,817	\$7,418	\$60,696	\$92,052	\$2,187	\$78,838	111
\$1,474	\$30			\$720			\$4,827	\$55	\$2,627	112
\$77,435	\$1,703	\$5,393	\$2,092	\$784	\$1,405	\$3,290	\$27,391		\$11,914	113
\$137,525	\$25	\$2,125	\$1,519		\$20	\$1,193	\$4,858		\$4,200	114
\$100,901		\$200	\$5,935		\$12,000	\$1,818				115
\$10,759,272	\$41,216	\$309,275	\$326,728	\$76,885	\$77,221	\$415,785	\$1,286,285	\$15,358	\$579,540	116
\$1,325,581	\$12,200	\$133,988	\$125,218	\$1,900	\$50,000	\$39,938	\$1,109,594	\$12,927	\$74,415	117
\$136,532		\$2,000	\$3,452	\$1,900		\$1,750		\$12,927	\$50,000	118
5,602,796	205,000	2,419,000	2,193,147			466,284	330,000		265,000	119
\$338,156	\$11,500	\$131,988	\$121,766			\$38,188	\$16,850		\$13,475	120
\$48,267							\$550,551			121
\$547,798										122
\$30,000							\$195,408			123
\$86,058							\$165,400			124
\$2,170					\$50,000					125
\$136,600	\$700						\$181,385		\$10,940	126
\$9,357,627	\$26,281	\$175,287	\$201,510	\$72,613	\$26,513	\$375,847	\$176,691	\$2,431	\$475,125	127
\$341,077										128
48,678						219		406		131
\$198,437						\$2,188		\$2,431		132
\$215,688							\$17,000			133
355,864	2,472	2,709	834	1,332	1,747	618	3,003		5,654	134
\$6,278,790	\$26,281	\$27,299	\$14,660	\$40,307	\$26,513	\$17,334	\$20,060		\$149,137	135
		\$492	\$691	\$7,306		\$7,987			\$2,381	136
117,602		35,749	14,674	7,500		18,730			62,775	137
\$809,374		\$142,999	\$171,966	\$25,000		\$206,720			\$282,488	138
\$8,167										139
1,175										140
\$46,951										141
18,144						6,772	10,200		553	142
\$177,662						\$108,493	\$74,000		\$5,536	143
1,106										144
\$10,488										145
60										146
\$758										147
						828				148
						\$24,846				149
7,667			200			100	3,250			150
\$50,349			\$1,600			\$700	\$18,400			151
\$1,219,886		\$4,497	\$12,593			\$7,579	\$41,231		\$35,583	152
\$76,064	\$2,735			\$2,372	\$708				\$30,000	153

TABLE 18.—POTTERY, TERRA COTTA, AND FIRE CLAY

	Minnesota.	Missouri.	New Jersey.	New York.	North Carolina.	Ohio.	Oregon.
Power:							
154 Number of establishments reporting.....	4	23	83	39	1	200	3
155 Total horsepower.....	775	6,199	14,964	4,370	325	25,182	240
Owned—							
Engines—							
Steam—							
156 Number.....	10	67	128	46	4	270	3
157 Horsepower.....	775	6,051	12,612	3,595	325	23,231	200
Gas or gasoline—							
158 Number.....		3	1	12		35	1
159 Horsepower.....		23	10	367		1,342	30
Water wheels—							
160 Number.....							
161 Horsepower.....							
Water motors—							
162 Number.....							
163 Horsepower.....							
Electric motors—							
164 Number.....		7	80	15		37	1
165 Horsepower.....		110	1,501	158		428	10
166 Other power, horsepower.....			20	20			
Rented—							
Electric motors—							
167 Number.....		1	30	1		8	
168 Horsepower.....		10	821	200		136	
169 Other kind, horsepower.....				30		45	
170 Furnished to other establishments, horsepower.....						30	
Machinery and kilns:							
Pottery—							
171 Disintegrators (blunger).....		1	102	20		227	1
172 Agitators.....	6	7	103	20		197	1
173 Slip pumps.....	10	8	107	13		192	1
174 Lawns.....	1		82	15		153	1
Clay presses—							
175 Iron.....	3	17	41	17		241	1
176 Wood.....	1	1	51	2	1	1	
Pug mills—							
177 Regular.....		9	83	15	2	141	3
178 Sagger.....			844	13		84	
179 Wad mills.....			49	10		91	
180 Jiggers.....	20	4	195	72		692	4
181 Batters.....			60	4		251	
182 Dry presses.....			221	148		111	
183 Polishers.....			16	2		58	
184 Lathes.....	2	7	102	47	4	189	
185 All other machines.....	7	15	113	67	10	205	4
Kilns—							
186 Up draft.....		8	230	48	3	443	
187 Down draft.....	36	34	78	35	19	281	3
Muffle—							
188 Large.....			74	12		43	
189 Decorating.....			72	16		212	
190 All other.....			6	4	2	14	
Terra cotta, tile, and brick—							
Clay grinding machines—							
191 Disintegrators.....	5	8	20	21	2	22	
192 Dry pans.....	2	39	34	19	2	153	2
193 All other.....		10	11	11		18	2
Clay tempering machines—							
194 Ring pits.....		1	10	5		5	
195 Pug mills.....	2	46	55	27		47	5
196 Wet pans.....	6	35	37	12	5	134	
197 All other.....	2		47			4	
Molding machines—							
198 Soft mud.....		2	53	5		11	1
199 Stiff mud.....		11	36	15		24	2
200 Dry presses.....		14	30	3		10	
201 Shape brick power presses.....		3	30	4		31	1
202 Hand presses.....		52	123	29	1	83	2
203 Sewer pipe presses.....	2	16	12	7	2	61	2
204 Tile machines.....	1	10	11	12	1	30	2
205 All other.....			2	3		23	
206 Mold sanders.....			47	5		9	
207 All other machinery.....	3	9	3	15		10	
Kilns—							
208 Clamp.....		4	77	7		14	1
Down draft—							
209 Round.....		150	200	52		880	10
210 Rectangular.....	4	55	22	14		98	
211 Muffle.....		28	41	24			
212 Continuous.....		6	4	2			
213 All other.....		14	21	18		25	
214 Dryers.....	3	30	41	29	1	83	1
215 Idle machinery.....	5	6	42	66		27	

CLAY PRODUCTS.

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PRODUCTS—DETAILED SUMMARY, BY STATES: 1905—Continued.

Pennsylvania.	South Carolina.	Tennessee.	Texas.	Utah.	Virginia.	Washington.	West Virginia.	Wisconsin.	All other states.	
145 23,595	5 425	6 535	5 500	3 175	3 235	5 1,179	16 2,028	3 70	7 776	154 155
229 22,243	5 414	7 535	7 500	2 140	4 235	5 1,179	21 1,868	2 60	8 748	156 157
17 1,009	2 10						4 106	1 10		158 159
2 80										160 161
										162 163
9 120							2 54			164 165 166
6 143	2 1			1 35					2 25 3	167 168 169 170
30 36 43 27		2 2 3		1 2 11	2 1 2 1		17 19 17 12		2 2 2 1	171 172 173 174
33 6		3 2	2 2		1	1	26	2	1	175 176
37 212 13 146 54 32 1 40 65	1 1 1 1 1 1 3 2	6 2 10 2 2 2 3 2	19 2 14 1 1 16 6	2 2 1 1 2 2	2 1 1 6 18 4 1 2		13 6 8 53 27 1 4 18 7	3 2	1 1 2 2 3 6 2	177 178 179 180 181 182 183 184 185
107 63	2 2	3 11	32 12	1 4	2 4	1	56 13	2	4 3	186 187
4 31 6					2		7 35 2	1	1 1 1	188 189 190
	1	2	2	2		1				
38 135 25	1 1 1	1 3	1 3	1 2 1	1 4	2 6	12 2		6 5	191 192 193
14 118 175 4	3 2 4	2 4	2 2	1 2 2	1 2 2	1 3 10	2 8 2		1 7 5	194 195 196 197
40 47 43 37 317 21 7 12 7 6	2 1 3 4 1 150	1 2 2 3	1 1 4 2 1		1 1 2 7 1 1 1	4 2 2 4 5	2 6 1 2 3		1 8 10 4 1	198 199 200 201 202 203 204 205 206 207
51			2	3						208
312 602		31	5	5 1	3 3	30	32 4		39	209 210 211 212
	1			1 2 1				1		213 214 215
107 105 36	1 1 4	1 1			2 2	2	6		6 13	

AMERICAN ART POTTERY.

The Centennial in Philadelphia in 1876 gave rise to an increased interest in the art pottery of the United States. At first this manifested itself in the production of meretricious objects that were unworthy of recognition, but, on the other hand, the seed that was then planted resulted in time in the manufacture of a higher grade of goods, even in some instances winning deserved recognition from connoisseurs and art critics of the Old World. This development has been perhaps most conspicuous in the production of art pottery.

In order to comprehend clearly the results obtained, a brief summary of the history of pottery, processes of manufacture, and definitions of the principal varieties of wares is essential.

HISTORY.

The art of pottery began when moistened clay was fashioned into shape by primitive man and the product hardened by the heat of the sun. That it must have been one of the very first arts acquired is obvious. Its first applications were of course purely utilitarian, and even before sun dried bricks were used in ancient Babylonia doubtless moistened clay was spread over frames to shelter man from the elements. The substitution of artificial fire for the heat of the sun was a distinct advance, from which in the years that followed came the kiln. The employment of sticks to aid the hand in giving form to objects was the first step toward the wheel, with the use of which pottery rose to the dignity of an art. In the course of time it was found that clays containing iron burned red; those containing magnesia, white, and that with the addition of burned wood or carbon under certain conditions the product was black. Thus was developed a knowledge of the value of different clays. Environment also had to do with the development of pottery. Certain localities were found to produce better ware than others. In time decorating in color with opaque enamel made in part of an oxide of tin began, notably in Egypt. The Assyrians deserve the credit for the first employment of lead enamels.

The highest perfection, both as to form and decoration, in glazed and unglazed earthenware was attained by the Greeks in the fourth century B. C. Thousands of Greek vases have been found in Mediterranean lands dating from this remote period, vastly superior to the

ware produced under the Roman Empire. Persia, from 500 years B. C. down through the Middle Ages, has produced notable specimens of the potter's art and has exerted a strong influence on the later manufacture of the western world. Before the Christian era splendid examples of enameled earthenware were made in Persia, which, as faïence, reached its greatest development in France and Italy in the seventeenth century.

Porcelain was made in China before 1000 A. D., largely due, it is believed, to the existence of beds of clay of proper qualities. It was not, however, until 1710 that a European, Johann Böttger, in the employ of the Elector of Saxony, discovered the secret of its manufacture and produced for his royal patron the first specimens of true hard porcelain ever made in Europe. The manufacture began at Sevres, France, in 1768 and at Plymouth and Bristol, England, before the beginning of the nineteenth century.

MANUFACTURE.

Clay.—The chief material from which pottery is made is clay, a product of the disintegration or weathering of siliceous rocks, such as feldspar, hornblende, and mica. These minerals, largely made up of compounds of bases such as alumina, potassa, soda, lime, and magnesia with silicic acid, and of iron oxide, when subjected to the long continued action of carbon dioxide and water, decompose. The insoluble aluminum silicate remains in situ, while the other silicates and bicarbonates, being soluble, are more or less dissolved out by percolating water.

It is seldom that a pure aluminum silicate, or clay, is found in nature. Many causes combine to prevent the complete disappearance of varying quantities of alumina, silica, iron oxide, lime, magnesia, and alkalies, the presence of which impurities affects the physical properties of the clay and indirectly the utility. Thus the greater the proportion of silica the less the amount of shrinkage, and the greater the proportion of alumina the greater the amount of shrinkage.

Plasticity, or the capacity of being molded when moistened with water, and the property of hardening under fire are the two qualities which give clay its great value for the making of pottery. Clays low in plasticity are said to be lean, meager, or short, while those most plastic are called fat, or long. Clay contains water in chemical combination, and it is the driv-

ing out of this water by burning that causes it to harden. The burnt clay, if ground to a powder and soaked in water, never regains its plasticity.

When clay is heated, it softens gradually, and if the heat is sufficiently intense it will become like molten iron. The more fusible clays soften at 1,500° F., while fire clays and kaolin require a temperature of 3,000° or more.

Clays are classified according to their uses, as brick clay, pipe clay, sagger clay, slip clay, and terra cotta clay. These names signify that the clay thus designated is specially adapted to the use indicated. Kaolin is a nearly pure aluminum silicate and is used chiefly in the manufacture of porcelain and other white wares. Ball clay is a plastic white-burning clay used as a binding in white ware and porcelain. Slip clay contains a large per cent of alkalies and lime, which gives a low fusing point, and hence it is valuable for glazing.

Slip.—Clay to be used in the manufacture of pottery is first prepared by weathering for several months or even years, washing, grinding, or screening. Often a combination of these methods is employed. After this preliminary treatment it is mixed with such other ingredients as may be necessary. Thus in the manufacture of one variety of hard porcelain the essential ingredients are kaolin as a body, quartz to prevent excessive shrinkage on drying, and a flux, consisting of feldspar or gypsum, to fuse and bind the whole together. According to Prof. Charles F. Chandler, the ingredients used in 1863 in the manufacture of hard porcelain at the Royal Porcelain Works in Berlin were: Kaolin, 28 parts; quartz, 66.6; ferrous oxide, 0.7; magnesia, 0.6; and lime, 0.3.

The proportions of the ingredients used vary with every potter and are naturally a secret known only to the principal foreman or superintendent. So jealously is this knowledge guarded that in some potteries the amount of an ingredient required is not entrusted to any workman, but the scales used indicate automatically when enough of each ingredient has been deposited.

After this mixture the mass is again ground into an impalpable powder, freed from any particles of iron or other foreign substances by screening, and passes to the pug mills or blungers, where it is mixed with water and worked thoroughly by many knives attached to a revolving shaft so as to form a uniform cream like mass called "slip." This slip may then be passed through wire cloth or fine silken lawn to remove all the coarser particles, and falls into the "agitators," tanks provided with paddle wheels to keep the clay, held in suspension by the water, from being deposited at the bottom. From these tanks the clay in suspension is forced into the press, consisting of canvas lined pens or boxes. The water is forced through the canvas by means of compressed air, and the clay then removed in

large cakes, ready to be formed, or to go again to the pug mill for further tempering.

The number of processes through which clay has to pass before being ready for shaping differs with the quality of the clay and the use to which it is to be put. That intended for the manufacture of the highest grades of pottery passes, naturally, through the greatest number of processes.

The slip was formerly either heated for the removal of the superfluous water by evaporation, or passed over beds of plaster of Paris, by which the water was absorbed, but this drying is now accomplished by means of the filter pans.

Before shaping, the moist mass is slapped, kneaded, and trodden, to make it uniform. Formerly it was put away in damp cellars to undergo a sort of decay or fermentation to make it more plastic.

It is in these purely mechanical operations that the greatest attention is required, as the quality of the ware depends on the knowledge and care exercised in the mixing room; and it is here that the skill and ingenuity of American mechanical experts have made the greatest improvements in the manufacture.

A New Jersey establishment now makes a complete slip in one machine, which comprises one double blunger, one double sifter, one agitator, one filter press, and one slip pump. The different ingredients are thrown through a hopper into the blunger, which is filled with the proper amount of water from a pipe entering at the top. When the ingredients have become mixed with water in the proper proportion, generally about 22 to 28 ounces to the pint, the valve on the pipe leading to the sifter is opened, and the liquid clay or slip allowed to run through the sifter, which removes all the coarse foreign ingredients. The slip then passes into the agitator, which keeps it constantly in motion, thus preventing the clay from settling to the bottom. It is then pumped from the agitator into the filter press until the water ceases to flow from the press, making it evident that the press is full, or "pumped up," and ready to empty. With a few turns of the handwheel, the press can be opened, and the cakes of clay removed, ready for use. This machine, made for the special purpose of testing clays, or the manufacture of special bodies, is ordinarily too small for a large plant, but the separate parts are made of such size as to be suitable for any works.

The pugging machines accomplish in one hour work that would ordinarily require one man's labor for two days. Abroad this process is still entirely done by the hand blunger, a peculiarly shaped shovel. Thus machinery of American manufacture is gradually taking the place of hand labor, and doing the work more satisfactorily.

Forming.—The shaping of the object is accomplished by means of either a potter's wheel or molds. The potter's wheel is thus described by Wagner in his "Chem-

ical Technology:" "The potter's wheel consists of a vertical iron axis on which is a horizontal disk, which is made to revolve by the feet of the operator on a lower disk, or by steam. A lump of the plastic mass is placed upon the wheel, the thumb being placed in the center of the lump and pressed downward; a hollow is thus formed which is widened or the walls continued vertically according to the shape of the vessel to be made. The constant revolution of the wheel easily allows the molder to obtain a perfectly cylindrical form. By thus humoring the clay, elongating the vessel, again depressing it, widening it, and by continued manipulations in this manner, the most exquisite shapes are produced. To form the ridges or sharp edges of the vessel, a small piece of iron, a strip of horn, or wood, termed "a bridge," is used. The perfectly formed vessel is cut away from the wheel by a piece of brass wire."

For centuries this process has remained essentially unchanged. Modifications have been adopted in recent times. Thus either steam or electricity has almost entirely superseded foot power. The tools, however, remain the same, and consist of pieces of smooth wood.

Molded ware involves the use of molds, which are usually made in the pottery itself. From the clay model of the article, e. g., a pitcher, a "block mold" in two exactly fitting portions is made of plaster of Paris. From this a plaster replica of the model is made, and from this replica in turn as many working molds as may be required. Modeling and mold making demand not only knowledge, skill, and time, but foresight and experience, as the workman must allow for shrinkage in firing, which averages one-seventh of the size, and guard against the use of forms that will warp or sink in the fire. Besides the molds used in casting, it is necessary to make various articles, such as rings and stands, to hold the forms in shape while they are being fired.

For the making of a molded article, the slip is thinned with water until it attains the consistency of thick cream. This liquid is poured into the mold, and allowed to stand until, through the absorption of water by the plaster of Paris, the mold becomes lined with a firm layer of the paste of the desired thickness. The central mass, still fluid, is poured out, and the solid layer allowed to stand until sufficiently firm, when the mold is opened and the object taken out. Handles, tops of vases, stands, and bases are all modeled and cast separately, so that to complete one piece of ware frequently requires four or five molds. The texture of drapery is imitated by means of a piece of tulle which is imbedded in the surface of the mass and burned off in firing. When all the parts have been combined, and the article carefully finished with tools, it is allowed to dry.

Firing.—The "green ware," as the dried objects are called, next passes to the firing process, and in order to

protect the objects from ashes and smoke they are placed in fire clay boxes called "saggers," in which they rest on sand or flint, different shapes requiring beds of one or the other of these materials. A strip or "wad" of moist clay is then laid around the edge of the sagger, and it is placed in the kiln close to the side. Another sagger is set on the first, and so on to the crown of the kiln, each of these upright tiers being called a "bung." The wads serve not only to protect the ware from the fumes and smoke, but also to steady the bung. When the kiln is full, the door is bricked up and plastered over with clay and the fire started. Heat is applied gradually at first, but is finally brought to a strong red. The length of time required for a biscuit firing varies from twenty-four to one hundred hours, according to the body and composition of the ware. This temperature is maintained for the allotted time, and then the kiln is opened. After being allowed to cool gradually for several days, the saggers are removed and the ware taken out. The fuel used is believed to have an influence upon the ware, and in some cases, especially in certain art wares, as will be shown hereafter, gaseous fuel is preferred to wood or coal.

The kiln itself is generally a conically shaped structure of brick lined with fire brick, about 16 feet in diameter outside and about the same height to the crown. Above the crown or ceiling the walls narrow as they go upward. The brick walls of the kiln are bound by heavy iron hoops or girdles to give greater strength. Around the base at equal distances are the fire holes, some eight or more in number, communicating with the interior by openings above and below.

Glazing.—The biscuit, as the pottery is called after passing through the first firing, is carefully examined in order to remove any defective pieces and is then rubbed with sandstone, polished with sandpaper, and brushed until it is perfectly smooth and absolutely free from dust. It is then ready for the glaze. Frequently, especially in many of the varieties of American faience that will be referred to hereafter, the decoration is now applied, consisting usually of mineral pigments. After decoration, the biscuit is subjected to a preliminary firing at a red heat, which is called "hardening." The glaze, or glass forming compound, is prepared with great care. Certain properties are essential. For instance, as in the case of porcelain, it must resemble the ware as nearly as possible, except that it must be more fusible. The composition must be similar to that of the body of the ware to prevent cracking and chipping. The ingredients, the proportions of which are obviously secret, are assembled and melted together, forming a "frit," which is then ground into a fine powder and mixed with certain other necessary ingredients. This mixture is again ground with water until the mass has the consistency of a heavy creamy liquid, into which the

article is dipped, care being taken to distribute the coating evenly and to avoid an excess. The part held by the hand is coated by means of a brush. The object is then set on a rack to dry, being carefully guarded from dust and foreign substances.

Firing of the biscuit ware.—When thoroughly dry, the objects are fired for a second time in the glaze kiln. Here again great care has to be exercised. As before, the articles are placed in saggers, but each sagger must be washed with a special glaze, and the articles must be so arranged that they will touch neither each other nor the sides of the saggers. Flat pieces are set on fire clay pins, and stilts are used to enable the fire to reach the bottom of the object. The arrangement in "bungs" is the same as in the firing of the green ware, and the degree of heat required is gauged by means of small clay rings called "trials" inserted through little openings made for that purpose in the kiln walls. Through other small openings called "spy holes" the interior of the kiln may be seen and the condition of the firing determined by the potter. In time the heat is lowered, and after the kiln has cooled the saggers are opened and the fired product removed. These articles are again critically examined for defects and only those that are perfect offered for sale. In some potteries such articles as are only slightly injured are sold as seconds.

In cases where overglaze decoration is applied the ware is again fired.

CLASSIFICATION.

The classification of pottery is not easy, but it is possible at the outset to make two very complete divisions—namely, "unglazed" or "simple" pottery, and "glazed" or "composite" pottery. Each of these divisions may again be divided into "opaque" and "translucent" pottery. In opaque varieties there are many very distinct differences. First, the color varies greatly; again, some are "soft," some "hard," and others "very hard," the latter forming the gradation between soft and translucent pottery. Differences in the temperature at which fired produce in some cases the differences in the varieties of pottery, so that pastes of the same composition may at varying degrees of heat offer the characteristics of all distinct varieties of ware. All translucent varieties have some common characteristics. They are always very hard and generally perfectly white.

Brogniart,¹ the great French authority, classifies pottery and porcelain according to the characteristics derived from the paste or body, and also according to the properties derived from the glaze. This classification is essentially as follows:

1. Porcelain, white semitransparent, only fused at a high temperature.

(a) Hard porcelain: Natural kaolin covered with a feldspar glaze; example, porcelain of China and Japan.

(b) Soft porcelain: Artificial paste covered with a lead vitreous glaze; example, early Sèvres porcelain.

2. Stoneware, very hard and infusible.

(a) Very siliceous clay covered with a lead vitreous glaze; example, old gray Flemish ware.

(b) Siliceous clay covered with a salt glaze; example, ordinary stoneware jugs or crocks.

3. Soft pottery or earthenware, easily fusible.

(a) Biscuit: Simple baked clay, porous and without glaze; example, common flowerpots.

(b) Glassy: Fine clay covered with an almost imperceptible vitreous glaze; example, early Greek vases.

(c) Glazed: Clay covered with a perceptible coating of glass; example, common white earthenware plates.

(d) Enameled: Clay covered with a vitreous coating made opaque by white oxide of tin; example, Italian majolica.

Each of the varieties of pottery just mentioned is divided into many subvarieties, all of which gradually merge one into the other. The addition of a little more of one ingredient and a little less of another in the composition of the paste has brought about such a condition in the classification that frequently a name given to a variety of pottery is either entirely a misnomer or else a mere trade name.

Nevertheless an effort will be made to describe the various art products under the three principal headings previously designated.

Porcelain.—It is of interest to recall that from 1825 to 1838 Tucker's pottery in Philadelphia successfully produced true porcelain of such excellent quality that it compared "favorably with the best French china," to which it was further pronounced "superior in whiteness and gilding."² In 1848 there was established in Greenpoint, N. Y., now a part of New York city, the Cartlidge Porcelain Works, which continued to exist until 1856, and produced a number of portrait busts in biscuit porcelain. The heads of Daniel Webster and Zachary Taylor were among the best of these.³ From 1880 to 1890 there existed in New Orleans a pottery that made true porcelain from materials imported from France, and employed French workmen, but all traces of this ware have since disappeared except the few specimens now in the hands of collectors.

The only pottery in the United States now making true hard porcelain in considerable quantities is in New York city. In this pottery greater progress has

² A brief account of this pottery is given by Thomas Tucker, a surviving owner, in *Reports and Awards, International Exposition, 1876*, III, page 13. More complete, however, is the description by Dr. E. A. Barber, in his valuable work on "Pottery and Porcelain of the United States."

³ See *Historical Sketch of the Greenpoint, N. Y., Porcelain Works of Charles Cartlidge & Co.*, by E. A. Barber, Indianapolis, 1895. (Pamphlet reprint from the *Clay Worker*.)

¹ *Traité des Arts Céramiques*, Paris, 1854.

been made in the use of machinery than perhaps in any other in the United States. One of the improvements introduced is the making of an oval dish by machinery, accomplished by applying the eccentric principle to the potter's wheel. The output is chiefly commercial ware, including the lighter grades of hotel china. It is found that such articles made of porcelain are much more durable than the cheaper variety, having less tendency to chip or crack, and the product is much in demand in high grade restaurants and hotels.

Although no attempt has been made by this pottery to place art ware on the market, some beautiful objects have been produced. A "poet's pitcher," designed by Karl Muller, is an exceedingly artistic piece of workmanship. It is of graceful form and embellished with relief portraits of Homer, Virgil, Milton, Ossian, Shakespeare, and Dante. A finely modeled "liberty cup" with embossed figures of Mercury and Justice, surrounded by the corn plant of the North and the tobacco plant of the South, with handle representing the Goddess of Liberty standing on an eagle with outspread wings, is also worthy of mention. Several reproductions of famous pieces of statuary, and some interesting busts of prominent Americans have been made.

This pottery was the first in the United States to apply to hard porcelain the underglaze method of decoration, although this was not practiced to a great extent, and the overglaze method is now usually employed. Much of this ware is white, but a tea service in Japanese style shown at the Centennial in 1876 was commented on by the jury as showing "colors reproduced with some success." Another product in colors is a vase adapted from the American pitcher plant.

An art ware of true porcelain has recently been made in Syracuse, N. Y. The body of the ware is a pure hard porcelain consisting exclusively of kaolin, feldspar, and quartz, all of which are obtained from deposits in the United States. The kaolin comes from Florida and Georgia, the feldspar from Pennsylvania, and the quartz from Maryland. At first a kaolin imported from England was used, but a satisfactory native clay was soon found and is now solely employed. The temperature at which both the body and the glazes are fired is about 2,400° F. An important feature of this firing is that it is accomplished in a closed muffle and with kerosene as fuel, which process represents an entirely new departure in the making of hard porcelain and in the developing of "grand feu" glazes. At the famous porcelain potteries in Sèvres, Berlin, Copenhagen, and elsewhere in Europe, and also in China, where the ox blood, peachblow, and celadon glazes are developed, wood is the fuel used. As opaque or semi-opaque flowing glaze is used, making it impossible to paint under it, the decorations are restricted to carved, incised, or raised designs. Many of the pieces are simple shapes covered with a fine glaze, and in such

cases the color is the only decoration. Indeed at the high temperature fired, the range of color effects is so extensive that they themselves constitute the best decoration. The glazes employed at this pottery yield both mat and crystalline effects, which are developed in a strictly oxidizing atmosphere and for which the particular fuel used seems to yield the best results.

In 1905 there was located at Newark, N. J., an art pottery, the management of which had previously been connected with the production of the Lonhuda art pottery in Steubenville, Ohio. Having in mind the growing appreciation of the older oriental pottery which relies upon the beauty and charm of its glaze and color for its effectiveness, the trend of modern art potters is in the direction of reproducing these effects, especially those obtained by Chinese and Japanese potters with crystallized glazes by the art of the fire (art du feu). Accordingly a ware was produced which was given the name of "Crystal Patina." It consists of a close dense white body, resembling true porcelain coated with a crystalline glaze suggesting the patina on bronze; hence its name. According to the manufacturer:

The first Crystal Patina was in one coloring, a pale green so closely resembling the green oxidation of bronze that the name "Crystal Patina" was thereby suggested. Later a greater variety of colors has been obtained in overflow and running blended effects, the varied beauty of which is the development of the "art of the fire;" consequently there is an ever changing and variable beauty, imparting thereby, individuality to each piece. The soft tones of Crystal Patina harmonize with most color schemes and furnishings of modern homes. The forms are mostly adaptations from the best oriental wares, designed with a view to their use, proportion, and grace.

This pottery also makes a "Robin's-egg Blue Ware" which has the same dense white body as the Crystal Patina, but is coated with a mat glaze. The color of the glaze is indicated by the name of the ware. A third variety of art ware is made at this pottery, to which the name of "Clifton Indian Ware" is given. It consists of a red earthenware body that is fired close and hard and decorated with Indian designs. It has a jet-black glaze inside of the object. The special features of this ware are the forms and decorations. The forms are entirely taken from original pieces made by native American Indians, so that they are exact reproductions of the aboriginal pottery of this country. The decoration simulates Indian patterns, but is not always exact; that is, it is frequently an adaptation. The red clay used for the body of this ware is from New Jersey, while the white clays used in the Crystal Patina and Robin's-egg Blue Ware are mixtures of foreign and native clays.

Stoneware.—The wares included under this heading are characterized by a dense mass. They are hard, not scratched by a knife, sonorous, fine grained, homogeneous, showing incipient fusion, scarcely translucent on the edges, and may be white or colored. Stoneware

is not well fitted for the production of art wares except in a very few instances. A so-called "Flemish ware" of a silver-gray body with decorations embossed and in dark blue is now made in this country. Beer mugs, tankards, wine jugs, decorated canteens, and umbrella stands are among the articles produced, all closely resembling the old Flemish grès. This ware, however, differs from the ordinary stoneware in that the body is of finer texture and the finish more artistic.

At Haddonfield, N. J., is the only pottery in the United States where artistic stoneware with salt glaze is made. American clays, mostly from New Jersey, are used, and the glaze is obtained by adding salt to the kiln both from the top and the bottom, which, vaporizing, forms the glaze by combining with the clay body at a high temperature. The products are limited, however, to jardinières and beer mugs in imitation of the old Flemish ware.

Earthenware.—Earthenware consists of an earthy mass or body with open texture, and is porous, medium hard, and only slightly sonorous. Under this class come most of the American art wares, since they consist essentially of earthenware bodies coated with glazes, usually opaque, which constitutes them a faïence ware. As has already been shown, it is not easy to classify these wares correctly, for the reason that the composition of the body is not only a secret, but varies with different potters, and at different times with the same potter. By increasing the proportion of certain ingredients and firing at a high temperature, a ware almost equivalent to stoneware is obtained; while, on the other hand, the composition of the mass may be so diluted as to resemble common earthenware.

It is said that the only crackleware produced outside of the Orient is made by a pottery located at Dedham, Mass. At present two kilns are operated and only two chief varieties of pottery are produced. Both have a gray body, resembling true porcelain, and are fired at a high temperature. To one of these is applied the colored glazes discovered by the proprietor, some of which possess a great depth and brilliancy, while others have an exquisite softness of color. Both varieties of coloring are the result of the intense heat of from 2,000° to 2,500° F., at which they are fired. These glazes are all dark colored, and range through various shades of red, green, and olive. The other product of this pottery is the gray crackleware, similar to that just described, except in color, and usually decorated in blue. This ware is characterized by a crackle comparable to that of the best Chinese and Japanese potteries.

In 1887 a plant was established in Boston for the manufacture of tiles, and five years later the use of plastic molds for the production of these tiles was introduced. The proprietor, who has been most active in the development of this ware, early came under the influence of the modern French grès, and began experiments that have resulted in the production of the full

or lusterless surfaces that are so well known. The results of his investigations were applied to architectural decorations, to garden pottery, such as jardinières and lanterns, and especially to art pottery. The latter is a hard, dense ware, fired at great heat, and possesses as its characteristic quality an enamel of great delicacy and softness. All this ware is modeled by hand, and the motives of the designs are taken from common forms in plant life, such as the mullein leaf, slender marsh grasses, the lotus or the tulip, which are treated in a conventional way. The product is further enriched by decoration in low relief, done while the clay is still in a plastic state. The designs are drawn and incised or modeled upon the surface, after the form or profile of the vase has been fixed by the potter. The colors are greens, pinks, and yellows. A special claim for recognition comes from the fact that this ware is made exclusively from American clays, coming from deposits in New Jersey and at Marthas Vineyard.

A pottery was established at Keene, N. H., in 1871 and now operates two kilns. Originally the output consisted of flowerpots decorated in colors by hand and then glazed, forming a majolica ware. Later the semiporcelain body was introduced, possessing a light dull finish or tone resembling the Royal Worcester ware, so highly regarded some years ago. A number of specialties were made of this ware, notably the "Longfellow jug" and the "witch jug," sold in Salem, Mass., as a souvenir. The success of these souvenirs for tourists led to the making of a large line of such articles, especially with colored glazes, such as blue, mahogany, and a "Hampshire" olive green, all of which were characterized by an effect resembling graining, produced in the firing. These souvenirs had an extended vogue, especially those having on the ware the name of the locality or resort in gilt, and successfully competed with the cheaper products of foreign potteries. Possibly an important element in the success of these wares was the satisfactory shapes employed, nearly all of which were modernized forms derived from early Greek and Egyptian models.

The latest successes of this pottery have been with the dull mat effects now so prevalent. The body, originally an earthenware, has in recent years gradually approached the composition of semiporcelain, and consequently requires a higher temperature in firing. Foreign clays, especially English ball clays, are used, although for some varieties of ware domestic clays from New Jersey and southern Florida are used. The colors employed are greens, blues, browns, and yellows. Many of the greens have a soft, warm, velvety surface, heightened by a lace like effect, the result of the high temperature in firing, which apparently produces minute white crystals. A crackle effect is also produced by a peculiar treatment during the firing. A characteristic feature of the Hampshire ware is the bright glazing inside the vessel, due to the fact that the ware

is designed for practical employment and not exclusively for decoration or ornament.

In 1902 a pottery was established in Colorado in which, from the first, the efforts of the potter were directed toward obtaining a glaze of dull finish, and his experiments in this direction were successful. The ware is a product of hard fire, and the high temperature obtained gives to the dead glaze a texture and quality seldom found except among the older Chinese wares. The glaze ranges from a dead finish to a dull gloss. Yellows, browns, greens, blues, pinks, grays, and blacks, in many shades and varieties of effects, represent the wide extent of color. Flowers, and human and animal forms, are used in decoration, always for the purpose of adding to the charm of the original line of the object, and never merely for the sake of decoration.

An art ware made in Terracotta, Ill., is the result of many years experimenting by the president of the establishment. Originally, it consisted of a porcelain like body with a crystalline glaze, but this variety is no longer produced. The present ware has a hard body approaching stoneware, evidently fired at a high temperature, with a mat glaze characterized by a velvety finish without gloss, and a soft moss green crystalline color. Green is the only color in which the ware is produced, and no painted decoration is used. The richness of the color scheme, and the simplicity and grace of the designs selected, merit the approbation of the connoisseur. The forms are largely derived from nature, particularly from aquatic plants cultivated in the vicinity of the pottery to afford motives to the designers. Naturally the mechanical treatment depends upon the design, so that certain pieces are thrown upon the wheel while others are molded. The clay that constitutes the body of the ware comes almost entirely from Brazil, Indiana.

After an absence of a quarter of a century, there has recently returned to Cincinnati a gentleman whose experiments, about 1880, resulted in the production of some valuable glazes, which he applied to certain varieties of earthenware. Resuming the making of art pottery, he has been successful in producing a ware characterized by a colored mat glaze over relief work, chiefly in dark shades of green. Specimens of his work showing a splashed effect of green, dark blue, or black are noteworthy. This establishment also makes garden pottery of antique forms in old ivory shades.

The oldest, and likewise the first, of American potteries to devote exclusive attention to the manufacture of an art ware is also in Cincinnati—the first not only because it is the oldest, but also because it is at this pottery that there has been produced an original ware, the beauty of which has been conceded by the leading connoisseurs of the world. Made by Americans from American clays, the ware stands preeminent as the first distinctively American art pottery. In

December, 1905, the pottery celebrated the twenty-fifth anniversary of its founding. Its existence has been brief, yet very significant to the development of art pottery in this country.

In 1875 an interest in ceramic matters was aroused in a number of the young women of Cincinnati, which found its first conspicuous expression in some decorated cups and saucers sold at a Centennial Tea Party held a year later for the benefit of the Mount Vernon Ladies' Association. From this beginning grew the Pottery Club, of which Miss M. Louise McLaughlin and Miss Laura A. Fry were original members, both of whom now receive the homage of worthy recognition of what they have done for the development of American art pottery. Contemporaneous with this movement, and its enthusiastic supporter, was Mrs. Maria Longworth Storer, who, however, worked independently, and built a pottery of her own, where she hoped to produce from "our native clay a new pottery, original and different from all others, by applying color decoration on the material itself before firing, and then to protect and enrich this with appropriate glazes."

It is not necessary to follow the history of this pottery in detail, although it may be mentioned that in 1889 the works became self-supporting, and Mrs. Storer transferred her interest to a company under the control of a gentleman associated with her since 1883. The clays in use for all purposes are entirely American. Originally they came from the Ohio valley, but subsequently other clays were found more satisfactory. At present much of the clay used in the making of the body is mined in Missouri. At first the clays inclined the color toward yellows, browns, and reds. The decorative medium lent itself to a rather luxuriant style of ornament in arrangements of warm color, in all of which the transparent glazes merge in mellow tones. With time came the production of deep greens and blues, and then more recently the exquisite mat glazes. As the body is principally of clay, the ware may be classed primarily as an earthenware; and as it is glazed, it may be further considered as a faience.

By a happy combination of artistic, scientific, and commercial elements there has been a constant improvement in the varieties of wares produced at this pottery. The earliest and best known of these varieties is the so-called "Standard," especially characterized by its low tones, usually yellow, red, and brown in color, with flower decorations painted in warm colors under a brilliant glaze. From a comparatively light and golden color the arrangement varies to red, brown, and green combinations in subdued tones. Closely related to these are the remarkable glaze effects first produced in 1884, and a series of solid color pieces. Another variety is characterized by a limpid, opalescent, sea-green effect, on which a favorite decoration is a fish moving under water. In floral designs under this

glaze blues, yellows, and sometimes reds are used. Combinations of blues and greens relieved by touches of golden yellow, red, and other warm colors mark this style.

A beautiful class of effects, extending over a considerable range of color, is also based upon a warm gray tone. The methods of preparation are the same as for the "Standard" ware, with such modifications as come from the light body decorated with grays, pinks, soft blues, greens, and yellows. The lighter color scheme, the more delicate body, and the white over a delicate decoration produce a softness that is almost suggestive of porcelain.

The "mat glaze" varieties were the next development, and these are characterized by the absence of a glossy surface. The elements of the glazes are built up so as to yield in the fire not only those effects which can previously be determined, but also those unexpected variations which appear at a very high temperature. The result is a delightful play of color, which gives individuality to every piece, even though otherwise undecorated. Above all, however, and in distinction from other types, is the beauty of texture in the substance of the glaze. These varieties include mat glaze painting, on which the decorations painted in rich reds, yellows, blues, and greens are suggestive of flowing enamels, but with a mat texture. The conventional mat glaze is a mat glaze with flat conventional decoration in colors. The incised mat glaze and modeled mat glaze wares take their names from the decoration, which is incised or modeled, according to the variety, and in single colors or in combinations.

The vellum ware, first exhibited at the World's Fair in St. Louis in 1904, is the latest product of this pottery. It is devoid of luster, though without dryness, and presents the qualities of old parchment. To the eye the texture is softer and closer than in other mat glazes, and to the touch it has a fineness and a solidity suggestive of an ivory without high polish. In some specimens of this ware the decoration is painted, in some modeled, and in some both painted and modeled. The glaze lends itself equally well to all three treatments. The success of these mat wares has led to a demand for faience panels, flat and in relief, in all the combinations in which the architect or the decorator may use such effects of color as are possible in this glaze. The manufacture of complete mantels, mantel facings, wall panels, drinking fountains, and architectural reliefs for interior decoration of public or private buildings has been taken up. The use of modeling, combined with color under a mat glaze, makes it possible to secure an endless variety of effects in these different kinds of architectural ornaments.

In Zanesville, Ohio, there are several potteries where art wares are made. It may be said in this connection that not long after the success of the brown faience wares had been achieved there was established in

Steubenville, Ohio, a pottery at which a somewhat similar ware was made. After a few years the production of this ware was discontinued and one of the members of the firm who was credited with the best knowledge of the potter's art established himself in Zanesville, where the production of the brown faience wares was continued.

Another potter of Zanesville began the manufacture of art wares about the year 1896. For his bodies he used American clays almost entirely, and especially a clay found in the immediate vicinity of his pottery. However, clays from Georgia, Pennsylvania, Tennessee, and West Virginia, are also employed. The products are chiefly of earthenware bodies, covered with a colored glaze, thus placing them in the class of faience wares. Several varieties of ware are produced. The owner states that over twenty different styles of ware have been originated in his pottery. The earliest of these is characterized by a high glaze, generally in red or brown colors. It is usually decorated by hand with flower and fruit designs or portraits, frequently of Indians, while the background colors are sprayed on with an atomizer. Upon some of this ware the background colors are applied by means of a brush instead of an atomizer. It is attractive in appearance and comes in cream, red, and yellow colors, with hand decoration, usually of fruits and flowers.

Another variety of wares are of light body and have the background colors blended on with an atomizer. Pale and delicate blue, gray, and green color effects are its characteristics. The decorations are of flowers, fruits, and human figures. Sometimes the last mentioned are in relief, affording a pleasing effect.

The most interesting product, however, is an art ware with a remarkable metallic luster. A description of it follows: "The vases are first treated all over with a secret metallic preparation and then decorated in floral and other art effects with chemically prepared metallic pigments, which when fired at a great heat (by natural gas instead of coal) are transformed into the most beautiful metallic lusters, the light and shade of which make the most perfect color schemes and which are absolutely permanent."

The latest products from this pottery have been mat wares. These have a dull, mat finish and are turned out both decorated and undecorated. The decoration is applied on the biscuit ware instead of on the unfired wares, and striking results have recently been obtained by incised designs, especially in greens. For example, a fish in outline under the glaze appears to be swimming in a green sea. The ceramic art wares of this pottery are of high character and deserve commendation.

Still another Zanesville pottery, conspicuous in the manufacture of art ware, was established in 1892. For these wares American clays are chiefly used for the body, although some English china clay is used. The body is faience earthenware with a colored glaze.

This pottery produces a ware with a splendid red colored glaze, like the famous rich red of the Chinese, known as "ox blood," which has long been sought after by western potters, and was first produced satisfactorily in this country by Robertson, of Chelsea, Mass., whose results, while wonderfully successful, were so costly that it was impossible for him to secure a price for his products that was commensurate with their cost.

In 1885 a pottery was established in Roseville, Ohio, where the making of flowerpots was carried on in a modest way. In 1891 it moved to Zanesville, where the production of majolica flowerpots was begun, and since then the development of its wares has been rapid. It now possesses a large plant, and has probably produced more varieties of art ware than any other American pottery. The articles made are jardinières, flowerpots, and pedestals, umbrella stands, fern dishes, tobacco boxes, and many fancy novelties. American clays are used, chiefly those from Ohio and Tennessee. All the wares have an earthen body and vary according to their special treatment during the manufacture. One of the earliest successes was ware characterized by a brown shaded glaze, beneath which is the decoration, consisting of heads of American Indians, of animals, such as horses, dogs, and kittens, and sometimes of flowers. This ware has an individuality of its own, but may be classed with other wares already mentioned, and like them is also produced in light shades of blue, pink, and brown, due to the tints imparted to the glazes used.

An interesting product is a ware characterized by soft tints in blue, green, and brown, with an overglaze, free-hand decoration on a mat finish. The designs are chiefly flowers and fruits. This pottery also makes a faïence on which the designs are cut while the clay is still moist and the incisions filled with plastic decorations in color. This ware resembles the famous Faïence d'Oiron made in France between the years 1524 and 1537, and of which only fifty-three pieces are known to exist. The very intricate patterns of this old ware were suggested principally by the highly ornate book covers of that period, and many of them bore the royal chiffre of the French monarch. A variety of other ware that reflects credit on the pottery industry is made at this establishment.

A little more than a decade ago there was established in New Orleans, La., a pottery which is a development of the art department of a college located in that city. The body of its ware is made of clay taken from the Bayou Tchulakabauka, in Mississippi, and is coated with a glaze having frequently a metallic luster, showing flowing effects. The subjects of the designs are found in the indigenous products of the South in general and Louisiana in particular.

The ware may be described as faïence with an opaque decorative glaze.

The ware produced at a pottery in Westhampton, N. Y., belongs to the class of earthenwares known as faïence. The body is made from deposits of clay found in the vicinity. The special characteristic is described by the inventor under the term "fire painting," an expression which he employs because of the peculiar methods used by him in firing the glazes on the earthenware body so as "to match and retain the prismatic hues of the spectrum with a true rainbow iridescence." He asserts that the surface finish and the color schemes are controlled by the method that he has invented. He has also achieved considerable success in the production of a ware in which pure gold leaf lies embedded between layers of glaze, giving brilliancy to the coloring employed. The objects produced are molded by hand, and no decoration is attempted other than that accomplished by "fire painting."

With the view of exploiting the abundant mineral resources of California, and also of developing the clay industries of that state, a pottery was recently established in San Francisco in which the clay, kaolin, feldspar, quartz, and other materials used come exclusively from that state. The ware is a faïence, with soft glazes in various shades of green, buff, dull blues, and warm grays. Of special interest is a red in the biscuit, made from a very delicate clay obtained in Monterey county. The pieces are fired only once, and often decorated with white slip in engobe style. This red ware is produced in different shades, according to the degree of heat at which it is fired, and has a very beautiful satiny finish, the slip firing a very white mat. The decoration, which is simple and original, frequently consists of animal forms, such as lizards, frogs, horned toads, and birds, as well as of flowers, all of California species. The mushroom decoration is particularly effective in the biscuit on a pale pink body, the modeled part being in white, deep pink, and brown. Only clays are used, and no mineral colors. The shapes are all thrown on the wheel.

Located at Detroit, Mich., is a pottery which after several years of experimenting has succeeded in producing a body with strong plastic qualities when unfired, and with a tenacious structure when fired. Its fracture is very similar to porcelain, so that it can be classed as neither earthenware nor porcelain. This ware is fired in an open muffle kiln, without sagger, and with kerosene oil as a fuel. It is a product of high temperature, which suggests its close relationship to wares previously mentioned. While the composition of the body is secret, it is admitted, in a general way, that American clays, chiefly from Florida, Michigan, North Carolina, and Virginia, are used, as well as some

imported clays from England. The body thus obtained will accept both bright and dull glazes, although the latter have been employed to the greater extent. The mat glaze was originally used, but more recently the ivory and brown colorings, together with some soft gray and blue glazes, have more often characterized the product. All the shapes are thrown by hand, and modeled decoration is applied when the objects are in a plastic state. The coloring material is in the glaze, which is applied from two to four times, in order to give good depth and pleasing texture. Some of the most interesting effects are produced by the application of various colors, each one being fired separately. The decoration, especially in the earlier products, simulated leaf forms in two tones of monochrome.

The product of an art pottery at East Liverpool, Ohio, is a faience, with a mat glaze, the peculiarity of which is the production of different tones or shades, or even of colors, on the same piece, thus avoiding the monotony of color of the usual mat glazes, which by this pottery are not considered true to nature, where, as on a green leaf, all shades and tones of that color appear. This result has been obtained by a radical departure from precedent in the manipulation of the coloring oxides. The proprietor has been successful with greens, blues, yellows, oranges, pinks, crimsons, and black, and hopes to add reds to the list. By a little variation in the composition of the glazes he finds it possible to get the same results on bodies made of common Ohio yellow ware clay, or New Jersey marl, or on an earthenware body similar to that used for making tableware. It is the purpose of this pottery to produce articles of everyday use rather than merely ornamental pieces. For example, if a vase is to be made, a primary consideration in determining the shape is the flower it is intended to hold.

A faience ware that has attracted considerable interest is made in Biloxi, Miss. All the products are thrown on the wheel, and in consequence no two are made exactly alike. They possess the unique feature of being exceedingly thin, almost equal in this respect to some specimens of Trenton Belleek. The metallic glazes are excellent. Among the specialties are various vegetable shapes.

Miscellaneous.—Under this heading are grouped descriptions of certain art and other wares made at potteries whose chief output is objects of use and service. To the proprietor of a pottery established in Trenton, N. J., in 1889, great credit is due for his perseverance in producing a high grade of art china. This establishment has acquired a special reputation for its Belleek and bone china ware. Belleek ware, which takes its name from Belleek, County Fermanagh, Ireland, where it was successfully made as early as 1863, is thin, glazed porcelain, rivaling in translucency the "egg shell" of the Far East, and possessing a pearly luster said to be

produced by solutions of metal washed over the glaze and subsequently fired. It is obvious that this extremely thin ware could not be thrown on the wheel or made in a dry mold, but is molded by the process heretofore described. Much of it is decorated, and both overglaze and underglaze processes are employed. Belleek ware was the chief product of this pottery until about 1904, when it began to turn out a fine grade of bone china, sometimes called English artificial porcelain, which consists largely of bone ash in combination with kaolin and feldspar. In perfecting the manufacture of this ware the same persistency was shown that gained for this pottery's Belleek a reputation second to none. A specialty was formerly made of college steins or beer mugs decorated with baseball and other sport designs, and frequently with college seals. Notable among these products was a series in monochrome blue that was exceedingly rich in coloring. More recently very attractive results have been obtained by painting designs on the blue underglazed ware with metallic silver and then firing. Subsequently the silver paint receives an additional coating, which is then polished or engraved, showing the metal against a dark background. Similarly designs in gilt have been obtained by depositing a thin layer of gold on the silver by means of electroplating. These wares are produced with both a Belleek and a bone china body. It is interesting to note that this company uses largely clays of American mining, chiefly from Florida, mixed with English china clay. The feldspar that is used comes from Maine.

A Trenton corporation, whose principal business is the manufacture of sanitary plumbing and toilet and table wares and jardinières, claims it has developed the process of making bone china until commercial articles, such as tableware, can be produced in Trenton equal to the best English ware. This bone china is also made up into attractive furnishings for bathrooms, including such articles as cups and soap dishes, and designed to replace furnishings hitherto made extensively of nickel. At these works, as in other potteries, there have been made from time to time special pieces of art ware that should not be overlooked. Among these are four large vases that were exhibited at the Louisiana Purchase Exposition in 1904; made of vitrified china—that is, with a dense nonabsorbent body, they stand three feet in height and rest on pedestals of similar material. The decorations are elaborate and handsome. On a background of mazarine blue, similar to bleu de roi of Sevres, are numerous hand-painted scenes and figures. The most interesting of the four vases is that decorated with views from the life of Washington, including, as the most conspicuous picture, his famous "Crossing of the Delaware," after the painting of Leutze.

In 1870 there was established in Trenton a pottery

that produces an excellent quality of semiporcelain table, toilet, and hotel ware, the last named somewhat heavier and therefore less liable to breakage than the usual tableware. This pottery makes a specialty of underglaze decoration and has created a style that is not so heavy as the English or so delicate as the French. By furnishing designs that are between these two extremes, a characteristic style has been developed that is both dainty and effective, as well as popular. The ware itself compares favorably in quality with the best English ware. Besides the commercial wares already mentioned, this establishment has produced some souvenir plates of notable events, including the bicentenary of Trinity Church, Philadelphia, in 1898; the sesquicentenary of the initiation of George Washington as a Mason, in 1902; and the William Penn and Benjamin Franklin plates of the Pennsylvania Society of New York city. The bulk of the clay used in this pottery is of American origin, coming chiefly from South Carolina and Florida. It is combined, for the body of the ware, with china clay from England.

Another pottery in Trenton makes an excellent quality of white earthenware and Belleek ware in addition to the regular commercial line of household crockery. While a fair proportion of the output is decorated, and some attractive specimens of Dresden decoration are produced, still most of its art pottery is sold undecorated to amateurs by whom it is claimed better results may be had with the American article than with the foreign, although the latter is usually cheaper. This company thus endeavors to produce the forms most desired by American decorators.

A high grade of "hotel ware"—that is, a hard vitrified china—is manufactured by a pottery established in Trenton in 1892. The decorations are chiefly from French and German designs. The product is furnished to such well-known hotels as the Manhattan in New York, the Jefferson in St. Louis, and the St. Charles in New Orleans. The process of manufacture involves an improvement that is worthy of mention. No stilts are used in firing, and hence the marks on the ware usually indicating their presence are absent. American clays, chiefly from Florida, are employed, combined with china clay from England.

A Baltimore, Md., pottery, established in 1846, deserves recognition as one of the oldest surviving potteries in the United States. The class of goods produced is mostly semiporcelain, C. C. or cream colored ware, made into commercial products, such as high-grade dinner and tea sets, and toilet articles. Nevertheless, some art products worthy of mention are turned out. Domestic clays from Florida, Pennsylvania, and North Carolina are used in combination with the imported ball and china clays from England. Here was first produced, in 1851, the famous "Rebekah

at the Well" teapot, showing in relief the figure of a young woman with a water jar standing or resting at a well. It was made of Rockingham ware¹ and sold very extensively throughout the country. In recent years a "Brown Betty" or "Martha Washington" teapot, with silver ornamentations largely sold by jewelers, was also made. Some excellent specimens of majolica ware were produced in the early days, but the demand was slight and their production discontinued.

A line of beer mugs, tankards, and the like, with a vitrified cane-colored body resembling the Mettlac ware of Germany, frequently with designs in relief, are of more recent date. In this ware a mug decorated with the figure of the battle ship *Maine* was turned out during the Spanish-American War and had a large sale. A plaque showing a view of Pickett's charge at Gettysburg, with portraits of Meade and Lee and of Hancock and Longstreet, in an ornamental border, was produced in white ware with the design in blue. Also in the same ware was the McKinley jug or pitcher, popular during the campaign of 1896.

Another interesting product is an earthenware body on which a peculiar graining or flowing effect is produced by the blending of the colors of the glaze during firing. This ware is made in jardinières, pedestals, etc. The same articles of excellent quality have been produced in deep ultramarine blue and olive-green glazes. A variety of this ware with designs depicting Oriental life and painted with clays merits commendation as a distinctively art ware. At one time some interesting modeled pieces by James Priestman were made both in terra cotta and Parian. Some of these, representing animal heads, are as fine from an artistic as from a ceramic point of view.

The principal output of another pottery established in Baltimore in 1882 is semiporcelain ware, in which is made a large variety of clock cases, fern dishes, jardinières, umbrella stands, and other specialties. The clays used come chiefly from Florida and New Jersey, and are combined with ball clay imported from England, a Florida clay having been found quite as serviceable as the English china clay. Majolica ware, in great demand at one time, was the first product of this pottery. This was followed by different varieties, each of which was popular for a time. In the year 1885 a ware with a fine, thoroughly vitreous body of a grayish olive tint was first produced. It secured the following well deserved praise from Dr. William C. Prime: "No one who is interested in the art of pottery can fail to note this ware as marking an era in the history of American ceramics." During the same year there was made a series of modeled flowers, panels with heads in

¹ A yellow ware covered with a dark-brown glaze, usually mottled by spalling before it is fired. So called from the original ware made in 1796 at the Swinton works belonging to the Marquis of Rockingham.

relief, and medallions of Thorwoldsen's Seasons in Parian ware, that were highly praised. The Calvert vase, shown at the Columbian Exposition in Chicago in 1893, attracted much attention on account of both its excellent design and its exquisite finish. About that time a mat or a satin finish in solid colors, such as rich reds and dark olive greens, was introduced, and has more recently been used in combination with their earlier styles of decoration. A striking ware is that on which the decoration, beginning with a solid yellow color, passes into a vivid green, while on the yellow portion are shown Dutch scenes. This pottery has produced ware of increasing merit in quality, characterized by uncommon, yet pleasing shapes, by designs that were simple and unobtrusive, and by colors usually of subdued tints in light blues, greens, and reds. It would be greatly to the advantage of American art if all potters had done as much toward the improvement of the quality of their wares as has the owner of this pottery.

A pottery established in Wheeling, W. Va., in 1879 is one of the largest plants in the United States, having 19 kilns in active service. Its principal output consists of a full line of semiporcelain, mostly decorated, in table and utilitarian wares. A recent production of bone china resembles in many respects the best qualities of English manufacture. The early art wares produced here include some excellent decorated vases and pitchers with a beautiful mazarine blue glaze. At the time of the Spanish War a series of plates with pictures of the leading American war vessels was turned out, and also a red, white, and blue tobacco jar representing a miniature capstan, decorated with a portrait of Dewey and a picture of the *Olympia*. More recently this pottery has obtained the original block molds of the celebrated Greatbach pitcher, modeled by Daniel Greatbach in 1833 for the American Pottery Manufacturing Company, of Jersey City, and has placed on the market facsimiles with a green mat opaque glaze.

Another pottery, in Wheeling, was established in 1887, and is under the management of the skilled son of a veteran potter. American clays from Delaware, Florida, and North Carolina are used in making the body of the ware, although mixed with a certain amount of English ball clay which yields a semiporcelain tableware of unusual excellence that is decorated with decalcomanie from designs prepared for and owned exclusively by this pottery. Art ware is also produced in an extended line of specialties. The body is semiporcelain, with underglaze decoration of decalcomanie, finished in shading which gradually passes from a dark-brown tint to the most delicate ivory. A royal blue ware, with old mazarine blue glaze, made in vases and other articles is worthy of mention.

Encaustic tile.—The beginning of the making of tiles like that of brick dates back to prehistoric times. These ceramic products, used in building construction,

are found in Babylonian, Egyptian, Persian, and other ancient ruins. The only difference between the ancient brick and tile was one of shape. Tiles were thinner and broader, bricks thicker. The Mohammedans in the Middle Ages were the first to produce high art tiles. In western Europe, also, some tile floors of great beauty were laid during this period. The extensive use of decorative tiles for floors and walls, however, did not come in until the nineteenth century, about the middle of which the tile industry became an important one in England. Prior to 1876 the tiles used in the United States were almost entirely imported; but the exhibits of European manufactures at the Centennial led to a determination on the part of American potters to produce a tile equal to any, and at an exhibition held in Crewe, England, three years later, a gold medal was awarded to the American made Low art tiles. From then until the present, progress in the development of a better grade of goods has been continuous.

For floor and wall tiles very hard clays are selected, and a combination with barite is found desirable. Chemical analysis is employed to determine the composition of the clays, and experience is always a potent factor in estimating their value. The clay is prepared the same as for the making of pottery, except that it goes to the shaper in the form of a dry powder. The design is cut with a metal die, and the tile struck under a screw press, either by hand or by steam power. Great pressure is exerted. The tile is then glazed and fired. Manipulation of the tile in the kiln produces important results. If the colored glaze be transparent and the tile have a modeled surface and be placed level, the result is a monochrome, the high lights and shadows of which are perfect. On the other hand, if the tile be canted it gives a result in lights and shadows that can not be foretold. Accidents or some freak of the fire produce marvelously beautiful effects which could not be obtained by design and often no efforts can reproduce.

The average kiln will hold twelve million pieces, and the firing is continued for three or four days at a temperature of 3,000° F. When the tiles are small and used to form a pattern, as in a mosaic, the individual pieces are laid out on a strip of wood or a rubber mat having indentations of proper dimensions, into each of which a tile is placed. When the pattern is completed, the pieces are attached to a sheet of stiff paper by means of paste.

The use of tiles is rapidly increasing in this country, and they are now largely employed for floors, wainscoting, etc., as well as for the exterior decoration of buildings. Their interior use is urged on the ground that they are aseptic, sanitary, and fireproof.

A large tile factory is located in Zanesville, Ohio, and operates 35 kilns. This factory was established in 1875, and uses American clays, chiefly from Florida, Kentucky, New Jersey, North Carolina, Ohio, and Ten-

nessee. Every known variety of tile is made, including those for floors, wainscoting, and walls, as well as for art purposes. A number of small portrait tiles, showing heads of presidential candidates, and having a blue glaze, were produced during the campaign of 1896. The well known floor, representing a Navajo blanket, in the Indian room in the hotel Astor, New York city, was made by this company.

In 1877 a tile works was established at Indianapolis. The fuel used is natural gas, and 35 kilns are operated. The clays are chiefly American, coming from deposits in Florida, Georgia, Indiana, Kentucky, New Jersey, North Carolina, Ohio, Pennsylvania, and South Carolina. A high grade clay is preferred, as it is found that such clays stand a higher degree of heat. Every kind of tile is made, the variety extending from a high art tile to one for paving. A mechanical improvement known as the "anchor" back has been introduced, which permits the tiles which are used in wainscoting, etc., to adhere firmly to the cement or wall to which they are attached. The mat effects now so prevalent in art pottery have extended to tiles, and excellent results in greens and blues have been achieved. The tiling for the St. Regis hotel in New York city was made at these works.

In 1882, in the city of Trenton, a factory was established for the manufacture of wall, floor, and mantel tiles, as well as tiles for the decoration of furniture, for chemical laboratories, and for refrigerator linings. For the body of these tiles a combination of American and English china clay is used. The native clays come from deposits in Florida, Kentucky, Maryland, New Jersey, and Tennessee. This company has made a specialty of certain glazes, notably a series of stanniferous enamels that do not craze or crackle, and of which the colorings are rich reds, greens, browns, oranges, yellows, blues, and pinks, as well as delicate tones and shades of these colors. Another variety is a series of dull crystalline glazes in moss, leaf, Nile and dark greens, orange, lemon, gobelin and pastel blues, pink, ivory, and white. The application of metals, such as copper, gold, and silver to tiles has recently been taken up by this pottery.

In 1892 there was established in Zanesville a factory that makes a specialty of vitreous, encaustic, and ceramic flooring tiles from American clays. The characteristic feature of these tiles is a peculiar corrugated effect, which shows most conspicuously, perhaps, in those carrying a colored pattern. Such designs are produced by sifting colored clays through a stencil, using a different one for each color, then pressing under a hydraulic press and firing. Some very elaborate mosaics have been produced, involving the use of a large number of tiles. A notable one is that representing the landing of Columbus, after the painting by John Vanderlyn in the Rotunda of the Capitol, at Wash-

ington. A tile simulating granite, used for flooring, is an interesting product of this company.

One of the most artistic of the modern developments of pottery is the so-called Moravian tile, made in Doylestown, Pa. This pottery was established in 1900 by a gentleman who has devoted many years to the study of archeology both in this country and abroad. He conceived the idea of making mosaic tiles by a process which he has patented. In place of using tiles of an exact size or shape, he assembles fragments of any convenient sizes that serve his purpose. To use his own language: "The tesseras, not rectangular as in Roman or Byzantine mosaics, but cut in multiform shapes to suit the potter's process, and whose contours themselves help to delineate the design, are set in cement in the pottery. After the manner of the leaded glass designs of the earlier stained windows, these novel weather and time proof clay pictures burned in brown, gray, white, red, black, green, yellow, and blue clay, and strongly outlined in their pointing of cement, serve to decorate a floor or wall in the richest and most lasting manner."

The designs produced range from 1 foot to 20 in diameter, and consist of pieces of clay burned in many colors, superficially or throughout the body, and either glazed or unglazed. In some mosaics the figures of men or animals are of life size. This potter's long residence abroad has resulted in an extensive series of designs, obtained from original wall tiles in Spain, mural patterns in Italy and the East, and floor tiles of the fifteenth century in England, Germany, and France. He shows designs also from the colonial period in America. At this pottery some interesting drinking mugs with medieval designs are made. The clays used are of American origin, coming almost exclusively from Pennsylvania and New Jersey.

A factory in Chelsea, Mass., began the manufacture of art tiles about the year 1877, and for some years its products were famous. Dr. E. A. Barber writes that "their tiles were characterized by a marked originality, both in style and design, which has caused them to be extensively imitated both at home and abroad." Gradually, however, the firm's interest in tiles declined, and they turned their attention to the manufacture of art tile soda fountains, in the production of which they achieved a high reputation. Within the last few years, however, they have renewed their interest in the earlier work, and have produced both modeled and pressed tiles, made from New Jersey and Pennsylvania clays in combination with foreign clays, and characterized by highly colored glazes. They also produce some art faience ware that deserves mention.

Terra cotta.—Under this designation is included the lowest class of ceramic wares, with the exception of common brick. The properties of terra cotta are that the mass is not uniform, always colored, very soft,

porous, and open, slightly sonorous, opaque, fusible at a high temperature, and sometimes glazed. The growing interest in gardens has led to the manufacture of so-called "garden pottery," some of which merits consideration.

A Philadelphia pottery makes a specialty of terra cotta ware for garden decoration, comprising vases, statuary, fountains, balustrades, railings, tazzas, hermes, sundials, flower boxes, Italian flowerpots, and the like. American clays are used chiefly from local deposits and from near by deposits in Delaware and New Jersey. The designs are mostly classical, and include "antique," Grecian, Pompeian, and Oriental examples.

Tobacco pipes.—Clay pipes for smokers are made at various places all over the United States. The general process consists in passing a selected clay through the pugging mill and then forcing the resulting worked clay into a mold. Iron molds are used for the simpler forms and brass for the more highly ornamental varieties. When the pipe comes from the mold it is allowed to dry, and is then fired in a sagger. In 1868 a pottery for the making of clay pipes was established in Brooklyn, N. Y., which has made a specialty of portrait pipes. The series includes heads of Cleveland, Harrison, Bryan, McKinley, Roosevelt, Dewey, and John Mitchell. American clays are used, chiefly from New Jersey. For the most part these pipes are white, though sometimes colored to imitate meerschauts, or decorated with colors.

CONCLUSION.

From the detailed statements in this report the following facts may be summarized in regard to the raw materials, processes of manufacture, and products:

Raw materials.—It appears that American clays, chiefly those from deposits in Florida, Georgia, New Jersey, North Carolina, and Tennessee, are used by

nearly every potter, and along with them, generally, a certain amount of ball or china clay imported from England. Further, many potters use clays from the immediate vicinity of their plants, but almost always mix them with the imported variety.

Processes of manufacture.—These show the use of native fuels, especially natural gas when available, as in East Liverpool, Ohio, and other pottery centers in the natural gas region. Considerable advance has been made in labor saving devices, such as the use of machinery in place of human labor, and the use of steam and electricity whenever possible. The introduction of system and sequence in the plants must be noted as an American innovation. Thus, at a pottery in Buffalo, N. Y., the procedure is such that "from the time the clay has started on its journey from the clay bank until it is transformed into a dainty bit of tableware ready for use in the home, there is never a move backward and never a motion wasted." This pottery may be mentioned as the only one in the world operated entirely by electricity, the powerhouse supplying power, light, and heat to all the buildings.

Products.—Considering these under the three principal types of pottery, it may be said that porcelain as an art ware is not made on a commercial scale in the United States, although art ware with a porcelain body has been successfully produced, and promises much for the future. At present it must be regarded rather as an experiment than as an established product. In stoneware certain American varieties of Flemish grès in beer mugs, wine jugs, etc., are manufactured. Most of the art pottery made in the United States is earthenware, chiefly the variety known as faience. This product is worthy of the highest praise, not only for its originality and art qualities, but also for the careful and painstaking methods by which it has been developed and improved.

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